COAL AGE

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# Store Checks *vs.* Thrift

**A very live question of great interest to most coal men. Let Coal Age readers express their opinions on the subject. Do it today.**

THE president of a southern coal company stood and watched a long line of his employees—men (white and black), women and children—standing in the rain awaiting their turn to draw store checks to trade at the company store. Many of the best miners in his employ were represented in the line. Some interesting thoughts were fighting for place in the president's mind, but the foremost one was easily the most startling and ran about like this:

*"What does it mean to my company to have to admit that so many of our men are unable to finance themselves and families in spite of full turn and a two weeks' pay? Isn't my labor a rather poor kind and am I not contributing to their condition by issuing store checks from daylight to dark? Wouldn't I have a better class of men if I could teach them the value of thrift instead of discounting their wages each day?"*

This man had suddenly come face to face with a gripping problem of every concern that operates a company store on the store-check plan. It is a question that mining men must eventually tackle and settle—whether it pays to have a class of employees who have become so used to the check system that they cannot and will not save enough to tide them over a two weeks' pay or a class of men thrifty enough to do this and who will abhor the check system.

We will all admit that thrifty men make the best employees. That is, we know in our hearts they do? because thrifty people buy homes and become settled citizens, and we know they are the best workers in the long run. But that doesn't settle the question, because people who run coal mines know how easy it is to make a good profit out of company stores. Therefore the pocketbook is "touched"—not in the usual way—and the response is evidenced by the too-frequent statement that "mine commissaries are necessities."

If commissaries must be run—and they are often necessary at mine communities remote from towns—should they not be considered secondary to mining coal and be run only to furnish the mining people with life's necessities at the lowest cost?

Can they not be operated for this purpose without the issue of store checks, which is such an easy method of trading that the weak brother can't resist it?

## *Isn't* THRIFT *worth more than store checks?*

If it is, there are ways of reducing check issue so that men can be taught to leave their wages and draw real money twice a month; then pay the bills made at the company store and elsewhere.

# Ideas and Suggestions

## Mining Coal Without Profit

By Josiah Keely*

Should any worried and tired coal man pick up the *Coal Age*, and his eye light on the subject of this article, let him not be deceived into reading it for the purpose of obtaining a recipe. It is only a protest, and a futile one at that. If he continues to read he will recognize much of the talk he has heard in gatherings of coal men. But what are we going to do about it? Are we going to see the coal beds disappear right before our eyes, without profit either to the producer or to the consumer?

Acknowledging the futility of the protest, we want to hasten to explain that we are not trying to work up an old scare about exhausting the supply. Certainly it will be exhausted, and soon, too; but think of the criminality of letting a good thing go by without profit to anybody, the producer burying half of it in the gob and the consumer burning the rest with no regard to its possibilities. The finished product of millions of years turned back into its original energy, during the few generations of short-lived men, all because it is cheap—those who have it selling it for a song and those who buy it taking the hump and skin and leaving the carcass to rot on the plain.

### A Good Chance Being Lost

But do not think we are grieving about the carcass. We leave that to the professional conservationist. What hurts our conscience is the fact that such a good chance to make money is being lost. Here is a chance where the conservationist and the capitalist could work side by side and receive an equitable share of the profits; yet coal is wasted and money lost.

Somewhere in the musty yesteryears someone coined the paradox "coal baron," and anyone with money, provided he lived in the East, came West or sent his money West in order to lose it with greater ease. A system has been built up on which by investing about a dollar a year a ton of coal can be produced, and the exciting game has been started of seeing how many it will take to produce that ton and what it can be sold for. The difference is called the return on the investment.

At first it seemed that if that difference was 10c., that meant a 10-per cent. dividend. Then it was discovered (by a few) that many other investments would return 5 or 6 per cent. without the risks of operating and selling; so this was taken out before calculating profits. Then it dawned on others that when the coal was worked out the original dollar would have to be extracted some way, and a depreciation was estimated and deducted. Then after it was borne in on the wise ones that the smaller the profit on each ton the more tons would have to be produced, the coal industry began to get under way, and the less they gained the more they seemed to be thriving. Thrift is too rare a virtue to pass unnoticed, hence the production tax, the leasehold tax, the income tax, the corporation tax, workman's compensation—and "damn 'em if they do and damn 'em if they don't."

### Seeing Which Can Lose the Least

During the process of this evolution the more the investors protested that they were losing, the more those on the outside took it to be the deprecatory modesty of the oversuccessful, and crowed up. But like those of the herd pressing the leaders over a precipice, they were too far away to see them going down, and shoved in, to be in turn later pushed over the edge. Breaking away from this uncomplimentary figure of stampeding cattle, those who have escaped immediate destruction have settled down to an equally exciting scramble of seeing which one can lose the least, and working it on a strictly survival-of-the-fittest basis.

There is a popular game of cards which is being changed continually, either to conform to the development of the science or to stimulate the ennui of its devotees. Nullos was introduced for the player whose hand was so bad that it became a matter of interest how much he could lose, and the winning turned on how many tricks he could lose rather than how many he could take. Many of our operators in their zest for a game of some kind seem to have made it nullos. And so it goes desperately on, and the public is enjoying cheap coal at the expense of conservation and the capital invested.

We wonder sometimes whether that gentleman was pronouncing a curse or a prophecy when he said, "The public be damned!" Defining the public as all of us, it begins to look, to the more pessimistic at least, as if we were going to experience some such oblivion. One branch of the public believes itself sufficiently condemned when capital makes a successful enough organization for self-preservation, but is hastening that condition all the time by making organization necessary. There is not much question but that the condition of the coal industry is pretty generally recognized now by most of those engaged in it, and the knowledge is even permeating to the outer edges of the herd. Not that they have stopped pushing; but the new game seems to be to make a stake and get out of it.

### Low Costs at First

Most of us have by now learned that the first half of an operation's life is when the coal can be produced most cheaply. It is mostly solid work near the opening and the coal is easily and quickly put on cars. All the equipment is new and efficient. Repairs are at a minimum. Men are plentiful, not only because they like something new but because they get a better turn and have a shorter distance to walk to their work. It is comparatively easy to arrange a dividend.

The cry is, "After us the deluge." It is even found that the immediate seeming profits can be increased by

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abandoning half-worked-out mines and opening new ones. This cheap coal is brought into direct competition with that of mines 20, 30 and 40 years old. Sometimes the new mines, when belonging to a consolidation, are carrying the cost of the old mines, which works as a partial solution, although there are several mines yet that are old, or going to be old, that belong to independent interests. It would seem that under present conditions the only hope for these single mines is to take sanctuary under the protecting wing of some consolidation operating new mines and to go over at almost the consolidation's own figures.

As a general rule, economists tell us, price is regulated by supply and demand. The supply has been multiplied as the only way to make a profit on cheap coal—sell lots of it, supply and demand—an old, old saw, or see-saw! Unfortunately the small operation cannot curtail supply and live, and so all those public-spirited men who are howling about trust, monopolies, combinations in restraint of trade and the other necessity-made organizations which their souls hate are slowly but surely rounding up the stampede into something that any captain of industry would be proud to father.

### Three Perfect Organizations

Someone has facetiously said that there are but three perfect organizations—the German Army, the Catholic Church and Standard Oil. These are widely differing organizations of opportunity and necessity, and no one can deny that they have showed us things. However, it is hardly my purpose to invoke a triumvirate of the Kaiser, the Pope and John D. Rockefeller to put the coal business on a proper footing. Probably a little less centralized effort would help some, but people never dreamed dreams and saw visions more than today.

Perhaps, after all, the dear public would rather milk one big cow; but they should not forget that in creating a model of heroic size it might assume the other sex with all its traditional disposition to chase. Anyway, if the cheap-coal curse is not solved by someone big enough to save the day it will be solved in the same old way. The enormous capital invested will shrink to a size equal to someone's pocketbook, and the best-filled purses are held by those who have seen the disaster of ruinous competition in time to keep some industries, at least, on a paying basis.

### What Is the Remedy?

What are we going to do about it—get together or invite someone big enough to handle the job to come in and take it off our hands? Or have we waited until someone has already got far enough along to tell us what will be allowed for depreciated investment?

Just to wind up this talk, suppose someone big enough for the job already held the controlling stock in the controlling companies of the controlling states, and also controlled the price of competing fuels, such as oil and gas; and suppose this someone controlled railroads which in turn might manipulate car supply, and suppose in this time of oversupply of coal this big man controlled many of the industries which consume the coal, so that they would buy only the coal he controlled at a price he controlled over roads he controlled. Wouldn't that give us a jar? And suppose the big one would further reach out and make prices to those he did not control, so low as to be ruinous to all of us, even though we are selling cheap coal. What are we going to do about it?

## The Theory of Radical Change

An interesting line of thought was recently presented to us while listening to the address of a talented executive regarding practice in the operation of blast furnaces.

The fact that he was talking of the operation of blast furnaces in no way hinders the application of his point to any coal-mine executive, for practice in the operation of coal mines presents about as many varied and baffling problems as the running of a blast furnace.

But to get back to our speaker and his point.

He had made clear the progress of scientific knowledge as applied to his work and illustrated the difference in the practice of furnace masters (?) of other days, who knew that certain results were attained by doing certain things, but did not know why, as compared with present practice of modern executives who do know the "Why." He told about the man whose whole claim to success was based on his ability to introduce "radical changes."

This man had achieved a certain prominence by reason of a little knowledge coupled with successful bluff, and his method of execution was to call his associates together and state his intention to make a "radical change." This was usually accomplished by a disturbance in the whole organization, and the return to normal conditions was achieved a short time later by another "radical change," which put things back about where they were in the first place. The net result was a general unrest all along the line, because no one could tell when the next change would be made or what turn it would take. A short time later this man's company went broke.

There are, no doubt, a good many mining men who have seen the theory of radical change working out in the mining game. Sometimes it comes in the guise of a new manager, who has induced the owners to believe no success can be had unless there is a general shake-up, in which old and loyal employees are torn out root and branch without being given a chance for their alley. Sometimes it occurs in the physical sense, as when some overambitious salesman induces an operator to install machinery that is in no wise adapted to his mine.

No matter how it shows up, management that tries to achieve success with a system of radical changes is opposed to that which quietly accomplishes things without having to resort to such expedients.

The moral of the whole story can be summed up by saying that the executive who will be successful is that man who observes a rule of any well-ordered life—that radical moves (which nearly always are moves without due deliberation) are to be avoided as much as possible.

Doesn't the furnaceman's point strike you as a pretty good one?

**H. W. Martin Believes That as Mines Get Deeper** it will be found necessary to convey the air inward in airways used exclusively for that purpose, with no hauling or other work done on them. With such a pure supply of air, men will be able to work in a higher temperature and in greater humidity than can be done when the ventilation is not so good. As to the cost of such a system of ventilation, he does not believe it would be making too high an estimate by putting it as increasing directly with the depth; that is, a coal mine 2000 ft. deep would cost twice as much to ventilate as one 1000 ft. deep.

# Motor Haulage and Side Tracks--II

By George S. Brackett*

*SYNOPSIS—This is the second and concluding article on this subject. It deals not only with the arrangement of tracks at the junction of animal and motor haulage, but also with those to be built at the junction of main and gathering motors and where two or more straight-haul motors are employed.*

When local conditions will permit, it is better to have the complete terminal side track located on the main or face headings and its parallels. This location is more easily converted from a terminal to an intraterminal parting. This transformation, however, is often blocked by insufficient pillar thickness or by the necessity of maintaining the air course. The disadvantage of this location is the increased distance given the mules in coming out from the butt-headings onto the main; but this can be compensated by shortening the butt-headings.

If the plans contemplate placing the individual intraterminal side tracks on the room heading, the extension of the motor haul involves, first, moving the terminal side track forward, and, second, the building of a side track in the room headings. The terminal side track that is located just outside of the first butt-heading should serve the purpose with little change for the first butt alone, when the terminal is later installed at the second or third butt-heading.

### Lack of Forethought Delays Changes

Lack of forethought in these matters has often caused the extension of the motor road to be such an expensive proposition that changes are delayed until more than the cost of moving side tracks has been wasted in excessive animal haulage. The economy of animal haulage is contingent upon its confinement to moderate distances. It is unlike the gathering motor in this respect, and to maintain its economy the straight or main haulage must be continually advancing in steps of a few hundred feet.

Figs. 8 to 19 inclusive give illustrations of terminal and intraterminal side tracks. It is hardly the purpose of this article to criticize each plan separately, as such a method may be unjust in view of some of the many local conditions that make the adoption of that particular layout the most feasible. By illustrating the various plans without cavil, their adaptability to any set of local conditions must be determined for each particular mine. Under certain grades the simple runaround is by far the most satisfactory and most conveniently operated side track, both for motors and drivers. Under other conditions it is an abominable nuisance.

On the other hand, if conditions are such that the empties can be pushed into the empty track, the parting may be simplified. It is evident that where the grades are against the loads on the main headings it may be prohibitive for the mules to bring the loads out of the room heading; in fact the empties may drift into the room headings by gravity, saving the time necessary for the motor to pull them in and establishing this as the most favorable location for the parting.

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At times the location of the side track most desired by the management is precluded by the air course. Where there are not sufficient grades to assist the motor on the partings, and where the main headings are producing room headings on both sides, it seems advisable that there should be five parallel face headings, the center being the main haul, the next to the right or left utilized for the side tracks, and the extremes for the air return. Four headings are sufficient if room headings are broken on one side only.

In advancing terminal workings it is frequently unnecessary to make a parting at every butt-heading. Assuming these butt-headings to be 300 or 400 ft. apart, there is no difficulty in working the first half of the second butt from a terminal side track at the first butt. In the meantime the first butt has reached its limit with the room cut through to the second butt, near the center of the block. To bring the coal from the upper half of the second butt through this room to the first butt, and thence to the side track, will not give an excessive haul. This will permit the lower half of the second butt to be pillared out completely. The removal of the coal from the lower half of the first butt may be delayed, but it is coal close to the side track, economical to mine and a good asset to have in reserve for the future.

### Haulage Conditions Vary Continuously

There is still another consideration in the adoption of any standard side track for universal use in any single mine; that is, the haulage conditions vary from time to time. At times the capacity of the motor haul may exceed that of the drivers, and the mine capacity is limited by the number of cars the drivers can haul. Obviously that parting which is best adapted to the convenience of the drivers is the one to be selected. As the motor haulage increases with the development of the mine there comes a time when everything depends on the capacity of the motor, and we wish for the double-length side track with a center crossover, so that the motor when dropping the empties will be close to and ready to move off with the loads.

Under such conditions, without a second motor, the limit of the haul is reached. By extending it, we only reduce the production. We may be able to put on more drivers and maintain the same output for considerable advancement, although the gathering will not be economical. It is easier to waste money on many drivers than it is on two motors.

Generally speaking, I am more favorable to universally sacrificing motor convenience to the aid of the driver. One or two, or possibly three, energetic motormen are more easily watched and controlled than 10, 20 or 30 drivers scattered throughout the entire mine workings. Furthermore, the more side tracks there are conveniently located for the driver, the fewer drivers are coming into one side track, and better service from these men is the result.

Drivers waiting on the parting for others to come in from the longer hauls is a common defect of operation. The motor should bring loads to the tipple terminal and return with empties, irrespective of the standing loads at

the tipple or any delays at that point. It should feed side tracks regardless of standing empties and proceed regularly on its duties independent of meetings or waits or temporary local troubles and delays in the mine. The drivers should bring their loads to the side track, take empties and go so far as possible without waiting for the motor or for other drivers.

For this to work smoothly there should be an ample equipment of mine cars and generous length of side tracks, with provisions at each for surplus empties. I have seen plants so designed that the motor could not get away from the tipple if any loads from the previous trip were standing nor could it feed the inside partings if empties remained there. There is no economy in operating under such conditions, and there is no reason why they cannot be relieved.

When motors are badly pushed for time and there is danger of increasing the number of side tracks to such an extent that the error of reducing the capacity of the motors is pending, I have concentrated the side tracks by bringing (for instance) coal from the first and second butt-headings to the first parting, and the third- and fourth-heading coal to the fourth-heading side track, either through standing rooms or along one of the face headings parallel with the main. It is not good mining to operate and maintain a side track for a heading which for any possible reason does not produce sufficient coal to keep one driver busy. This driver's haul had better be lengthened and the side tracks reduced.

There are so many different conditions that have to be met and solved that it is impossible to lay down an infallible set of rules, except that whatever is done must be done with a view to keeping every unit of the haulage system working regularly, efficiently and independently of the other units, so far as possible, barring unusual breakdowns and delays.

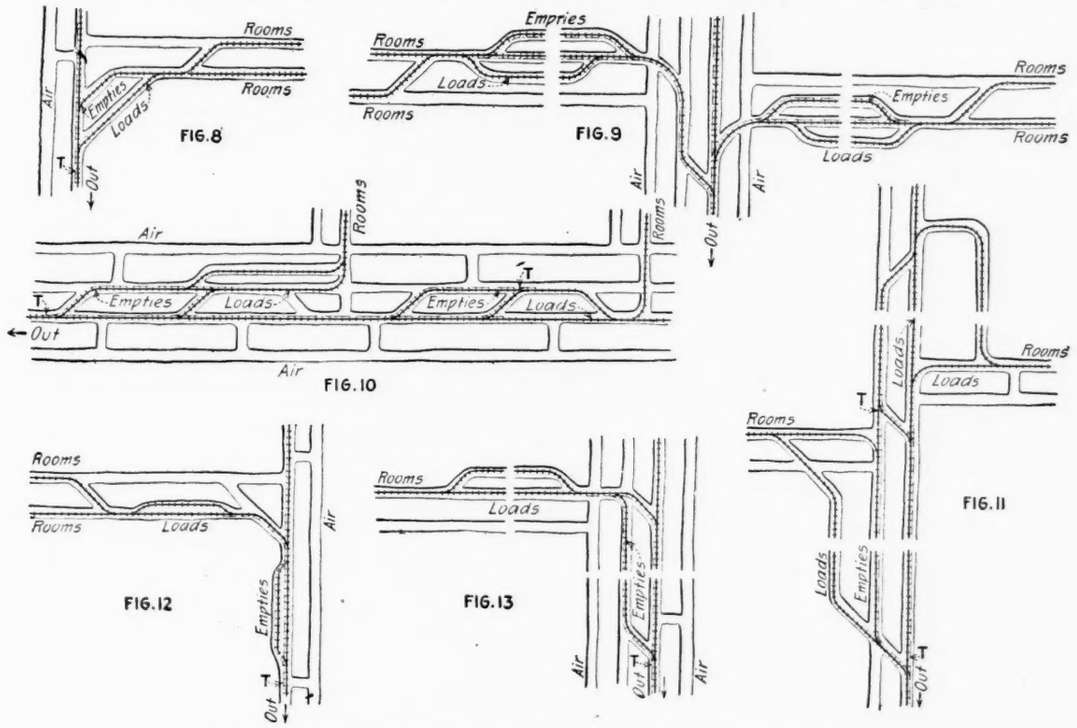
There are four considerations which determine the length or capacity of side tracks. These are (1) the daily capacity of the workings fed by the parting; (2) the number of trips the motor makes daily; (3) whether or not there is ample mine-car equipment, and (4) the number of loads the motor can haul in a trip.

### The Most Important Consideration

Granting the desired number of mine cars, the most important consideration is the tonnage or length of the trip the motor can handle. It should therefore not be required to feed a particular parting or associated group of partings until this length of trip has been gathered. Instead of the motor making the rounds of all the partings in turn, it should feed the heavy producing sections frequently, while the declining sections should be treated only as the full trip is gathered.

Practically the same general remarks pertain to the junction of main and gathering motors, with this general modification: The economy of gathering motors is not vitally dependent upon a short haul. The installation of the gathering motor greatly lessens the expense of advancing the side tracks to keep pace with the mine workings. There is, however, an economic distance beyond which the gathering motors should not be run. This distance varies with local conditions, grades and capacities of the motors. When this maximum is reached, there develops the necessity for breaking the haul into main haulage and gathering-motor haulage and the question of proficient side-track arrangement must be met. For the uninterrupted working of both these classes of units in the haulage system they should work independently of each other.

Whereas animal haulage must unavoidably fill the side tracks by numerous small trips of loads, the gathering motor may arrange to enter only when it has gathered the




FIGS. 8 TO 13. SIX TYPICAL SIDE-TRACK ARRANGEMENTS

full capacity of the straight-haul terminal. Ordinarily the tonnage of the straight-haul motor will be greater than that of the gathering motor, which will involve the straight-haul motor in turn collecting the trip from several gathering-motor terminals.

The question of side tracks resolves itself therefore into whether it is necessary for the gathering motor to make several returns to the terminal in order to gather the required trip for the straight-haul motor and whether several gathering motors are coming into the same parting. To provide for the most complicated case where the loads will not drift into the parting by gravity, where they must be pulled in and where several landings must be made before the return of the straight-haul motor, the siding must be triple length, with two crossovers. It may not be advantageous for the gathering motor to clear the main parting of empties, but the usual room for surplus empties must be provided.

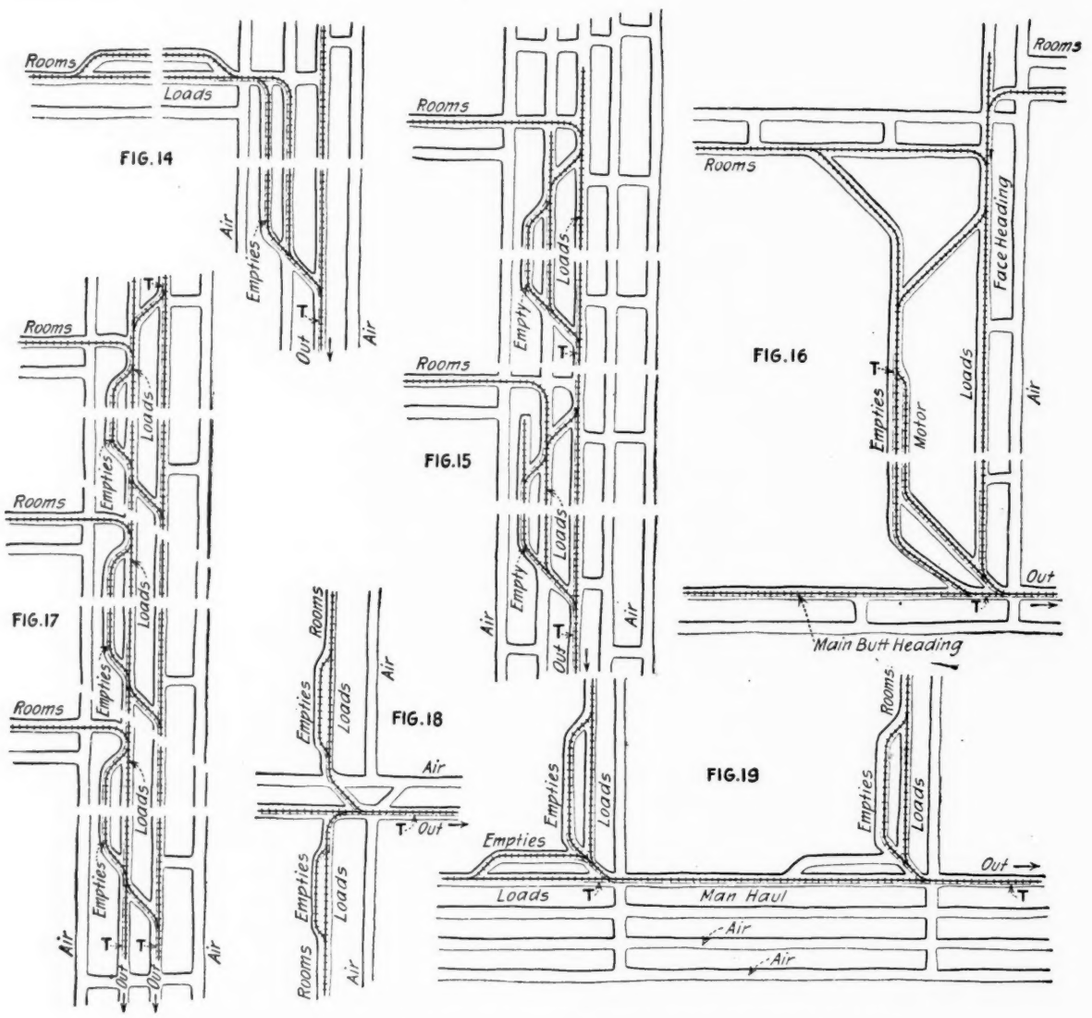
There are such numerous arrangements in the methods of gathering with motors that the planning of any side track is almost impossible unless all the conditions are known. They enter the rooms and pull the loads in some mines, and in others the miner delivers the load to the heading. In some the empties are placed by the motor at the face, and in others the miners push them up. One common arrangement is for the motor to deliver empties only on one heading and gather the loads only from the other heading.

### General Practice in Gathering

The grades on the heading may be so steep that they determine whether the gathering is commenced from the first or last room. The usual practice is to install a run-around at the mouth of the room heading in order to let the motor take its position in the rear (going in) of the empty trip.

The illustrations portraying the animal side track show the principal methods of arrangements with numerous modifications. Where the actual conditions and the duty required of the gathering motor are known, these will, with slight changes, serve the purpose. In fact the requirements of the terminals for animal haulage are more numerous than for gathering motors, as these have more power and can shift and push loads under conditions that would be prohibitory for a mule. On account of the greater distance covered by the gathering motor, the intraterminal side track is rarely used.

The next step in the question of motor haulage is met when the distance or tonnage gets beyond the capacity of one straight-haul motor. The installation of the second




FIGS. 14 TO 19. SIX SOMEWHAT COMPLICATED SIDE-TRACK LAYOUTS

motor brings us to a decision on the following four points:

1. Whether or not to lay double track on the entire main haul used by two or more motors in common.

2. Whether or not to arrange for the motors to meet at intermediate points, thus splitting the distance into several parts.

3. To provide intermediate passing points, or

4. Whether or not the mine cannot be divided into sections so that each motor shall work a different part and, by a system of signals or the word of a trapper, keep them from colliding on that part of the track used in common.

There is no question concerning the advantage of the double track—it is the surest way to eliminate accidents. Its disadvantage, and what influences most installations, is the expense, and if something nearly as good can be devised with less cost it will be the most popular. Hence the majority of single-track mines. The meeting of the two motors practically answers the same purpose with little loss of time during normal running, provided the meeting place is located at such a point that the inside motor or motors can work the side track on or about on even time with the outside motor. This is not difficult. The advantage is also that there are fewer empty mine cars and loads on the main haul and outside. Furthermore, there is considerable relief where there is a shortage in mine-car equipment.

I have been using this system for many months on a long motor haul. The double track was out of the question, and the scarcity of mine-car equipment necessitated the practice which held the least number of cars on the haulage road. In deciding between meeting and passing at some intermediate point there is little choice, except in the number of mine cars required by each system.

For two motors only, the kind of side track is a simple question when only meeting or passing is required, but as the haulage enlarges and two or more inside motors are necessary, with various times requisite for their trips, the meeting place becomes more complicated and provision must be made for all the motors to work independently of one another. A clear and distinct understanding of just what the side track is required to accomplish is the principal part of its design.

### Two Motors Using One Track Is Dangerous

As for two or more motors using part of the main single track in common, without a distinct passing or meeting point, the practice cannot be too strongly condemned. Without adequate electric signals it is dangerous. Even with signals it cannot be operated without great loss of time in waiting. Just as having too many drivers coming into the same motor terminal results in inefficiency, so too many motors coming into the same point can result in nothing but waste of time. One driver from one parting will haul more than half the coal delivered by two, and the average per driver decreases as the number increases on the same side track.

The same applies just as forcibly to several motors on the same terminal at the tipple. There must be delay waiting for the others or in finding out where they are, and always doubt as to where the others are going. This is too frequent at many mines to require much comment, except that it is always policy to keep more than one motor off one track, and if more than one is needed to handle the tonnage, break the haul into parts, allowing one motor only to land on the tipple.

Motor side tracks and motor haulage in general are so dependent on the individual conditions existing in different mines or in different localities in the same mine that a fund of information on what can or may be done is needed in order to adopt the best plan for any particular set of circumstances. The ventilation must never be lost sight of even if it be feasible to occupy both heading and air course at the present time. Whether the two headings will be needed in the future before the side track will be abandoned must be determined.

The economy forced upon the operators in the past few years has been such that ventilation by overcast at each butt-heading has been avoided by the mine management. In its stead a practical and cheaper system of check doors has been adopted and as long as continuous circuit is practicable is continued in effect. While this kind of ventilation is in use it is possible that the air courses at the junction of the butts and mains may be used temporarily. But no such temporary conditions would justify the location of the side track so that the air course cannot be utilized for air when occasion demands.

### It Is Unwise To Estimate the Life of a Side Track

It is hardly advisable either to estimate just when a certain side track will be abandoned or a certain section worked out. Regardless of the panel working and pillaring plans, there are sections that cannot be worked as fast as desired and others that it is not desirable to exhaust. Bad top and wet places retard working, and sometimes even prevent it. Sections with excellent mining conditions and close up to side tracks may be held advantageously for other times. The side-track location and design should be such as to meet these conditions, without enhancing the cost on the rest of the mine. Experience is one of the best, although one of the severest, teachers; and assets of developed but unworked coal, particularly in the better sections of the mine, are almost invaluable, and I have seen them husbanded as a miser hoards his gold. In severe labor shortages it is with much satisfaction that we display our array of "good places" to prospective boarding bosses with "maybe ten men."

This is digressing somewhat from the subject, but it emphasizes the necessity of flexibility in the proposed system of motor haulage and the need of its adaptability to all the crooks and turns of good mining practice. If we plan to work our panels with a long pillar line we may be doomed to disappointment. Through careful acquaintance with mine conditions and the labor and market situation and the location and changes that can be made in the motor side tracks, the electric haulage may be adapted to work the mine more advantageously than the most economic mining plans.

**One Mine Inspector Recorded an Explosion** that occurred in a place which he was assured had been examined a quarter of an hour before the accident. Stringent inquiries were made, and it was discovered that a miner took a safety lamp down, but as soon as he reached the face of the heading he struck a match to light an open lamp, and immediately the firedamp was ignited. Further inquiries disclosed the fact that at that particular mine the management had so feeble a grip of the discipline that orders were openly defied. In cases of this sort the management is perhaps more to blame than the miner.

# Railway Coal-Storage Plants*

*SYNOPSIS—Description of a proposed railroad storage plant on the Louisville & Nashville R.R., which involves some unique features. Also some comments on the current practice in general on this type of construction.*

Two widely different types of coal storage and handling plants for railway coal supply are described below, and in both of these the coal is stored in open piles.

The deterioration of coal in open piles is not a serious consideration, according to a report to the International Railway Fuel Association by a committee of which Hiram J. Slifer, consulting engineer, Chicago, is chairman. But the coal should be carefully studied to determine the best methods of preventing spontaneous combustion, and it is advisable to store that from different fields in different piles. The report stated that various investigations have shown that with most coals there is very little difference in the heating value, whether stored in the open or under cover, while objections to a covering are the increased cost of the plant and probable interference with the handling of the coal.

## Louisville & Nashville R.R. Plant

The coal-storage plant designed for the new Radnor yard of the Louisville & Nashville R.R., at Nashville, Tenn., comprises a semicircular coal pile, which is divided by a semicircular track for a locomotive crane.[1] The coal can be filled in over the ends of the track, leaving only a pocket for the crane. The general arrangement is shown in Fig. 1. This plant will serve both the Louisville & Nashville and the Nashville, Chattanooga & St. Louis railroads. The storage pile will contain about 12,300 tons for the former and 8,200 tons for the latter, while the coaling station for locomotives will have a 600- and a 400-ton bin for the two roads respectively.

The crane will travel on two tracks of 29¼-in. gage, spaced 18 ft. 11 in. c. to c., and will be mounted on four four-wheel trucks, thus having ample stability for swinging. It will have a long braced steel boom, carrying a 5-yd. grab bucket and having a maximum radius of 110 ft.

Coal will be received in hopper-bottom cars and dumped into a track pit, from which it may be fed directly to the vertical bucket hoist of the coaling station, or it may be picked up by the locomotive crane and deposited on the storage pile. To supply the coaling station the crane takes coal from the pile and drops it into the pit, filling it to such height that the coal will flow by gravity into the automatic feeders of the bucket hoist.

The coaling station will be of reinforced concrete, with a hoist tower of structural steel. It will serve three engine tracks. In addition to the coal bins it will have storage for 75 tons of green sand and 10 tons of dry sand. The coal and sand will be raised by duplicate balanced buckets at the rate of 125 tons per hour for both buckets. It will be provided also with four steel weighing hoppers of 15 tons' capacity. The crane will be operated by steam and the hoists by electricity.

A coal-storage and coaling plant of the same type is in operation at Paris, Ky. This has a crane of 80-ft. radius (with 3-yd. bucket) and travels on a single track of 15-ft. gage. The coaling station has only a single bin of 400 tons' capacity, and has no weighing hoppers or sand-handling equipment. A similar plant with 110-ft. crane and 600-ton bin is being installed at Lebanon Junction, Ky. The plant at Paris has not been in use long enough (and has not handled enough coal) thoroughly to test the operation and advantages of the scheme, but it is satisfactory as to its mechanical operation. The only special features of the coaling stations used in connection with these storage plants are the open-back dumping pit and the unusual depth of the feeder and bucket-hoist pit. The cranes were built by the Link-Belt Co., and the coaling-station machinery by the Ogle Construction Co., of Chicago. The plants were designed and built under the direction of W. H. Courtenay, chief engineer of the Louisville & Nashville.

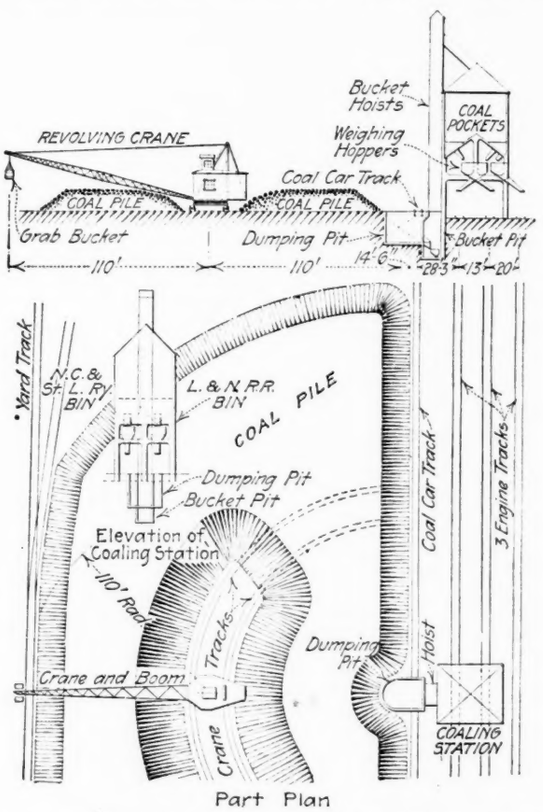



FIG. 1. COAL-STORAGE AND COAL-HANDLING PLANT WITH 110-FT. REVOLVING CRANE AT THE RADNOR YARD, LOUISVILLE & NASHVILLE R.R.

## Southern Ry. Coal Storage

Several reinforced-concrete coaling stations have been built recently by the Southern Ry., and at three of these provision is made for storing a supply of coal on the ground and handling this by means of drag-line buckets. The storage piles contain from 3,000 to 10,000 tons each, with a depth of not more than 10 ft. The general arrangement of the plant is shown in Fig. 2.

*Abstracted from the "Engineering News."

[1]This system, with a long-radius locomotive crane running on circular (or segmental) tracks, is patented by the Link-Belt Co., which supplied the cranes for the Louisville & Nashville R.R. here described.

The methods of delivering the coal to the storage pile and returning it to the coaling station are quite different from those at the Nashville plant already described. The railway cars dump the coal into a track hopper, from which it is fed by a loading device to an elevating conveyor of the bucket type. This delivers the coal either to the storage bin of the coaling station or to a gravity chute which discharges it at about the center of the storage pile. From this point it is distributed over the area of the pile by the drag scraper, which also delivers coal from the pile to the track hopper and elevator for the supply of the elevated coaling bin.

The storage pile is of irregular form and is surrounded by poles about 20 ft. apart for the attachment of the bucket lines. At the first plant these poles (termed pulling poles) were 20 ft. high, but it was found that poles of such height were not practicable without the use of outside guy lines, which would be undesirable. The height was reduced, therefore, to 12 ft. The poles are made of steel H-beams, each set in a concrete base. They are connected at the top by a row of 7/8-in. rods.

The operation of the scraper bucket is effected by means of a double-drum friction hoist driven by a 25-hp. motor geared directly to the countershaft. The hoist and motor are mounted in a housing in the coaling station or on a steel platform over the coal-receiving track. From the drum a steel hauling cable extends to the bail on the mouth of the bucket. The backhaul cable extends to a block hitched to one of the posts and thence to its attachment to the back of the bucket, as shown.

With this equipment the operator can take the coal delivered from the chute and distribute it between this point and the post to which the snatch-block is attached. To reach the space between two posts, lines may be fastened to them and the snatch-block attached to the lines, as shown in Fig. 2. By shifting the block from pole to pole any point within the coal-storage area can be reached.

When it is necessary to supply the bin of the coaling station, the position of the bucket or scoop is reversed, its mouth (or open end) being turned toward the coaling station, as in Fig. 2, the backhaul cable then becoming the hauling line. In this way coal is carried from the storage pile to the receiving hopper, from which it is fed to the bucket conveyor and elevated to the bin. Each plant is equipped with at least two of these buckets, thus minimizing the work of changing blocks and tackle.

The coaling station shown in the drawing serves three engine tracks. The main bin has a capacity of 955 tons, and there are three scale pockets of 15 tons each, making a total of 1,000 tons. It has also a sand-storage bin, with delivery spouts, so that engines can take coal and sand at the same time.

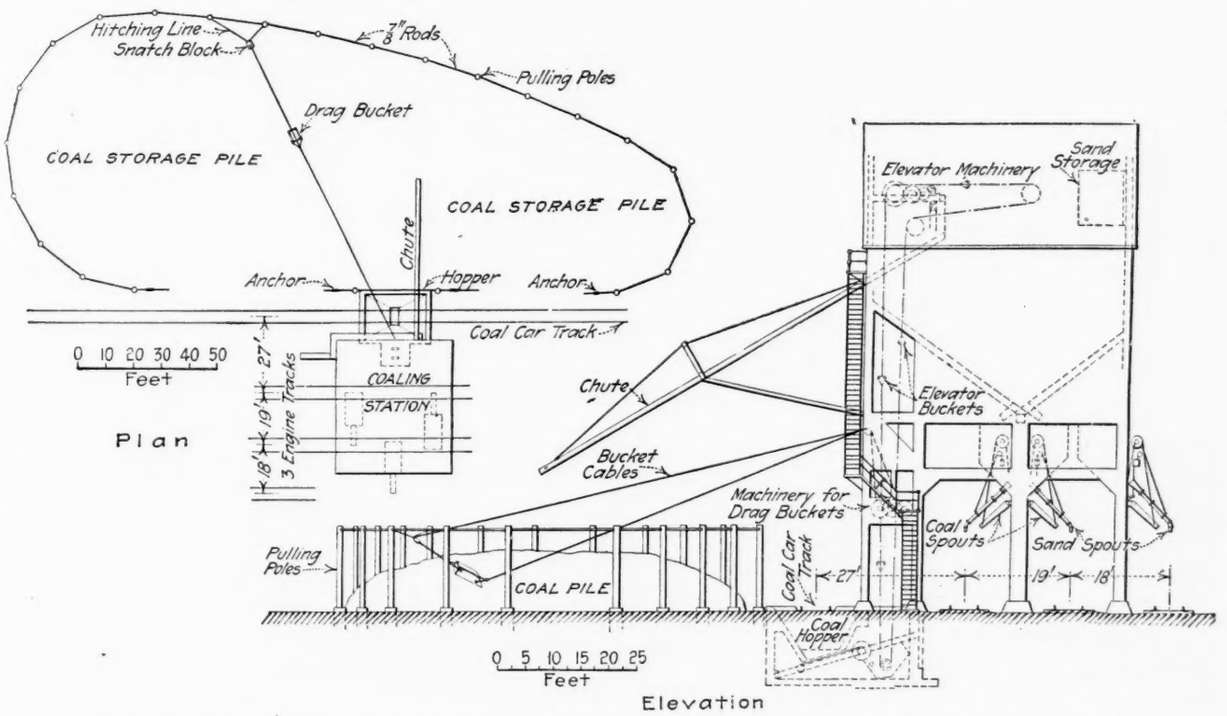



FIG. 2. COAL-STORAGE AND COAL-HANDLING PLANT WITH DRAG-LINE BUCKETS, SOUTHERN RY.

**A Steel Gas Reservoir Exploded** in the building of the Society for the Prevention of Cruelty to Animals in New York City recently. The tank, used for asphyxiating dogs and cats, is a steel chamber 5 ft. high, 5 ft. wide and 10 ft. in length. The cats to be killed are placed inside the tank, and illuminating gas from the city mains is discharged into it. In the published reports of the accident the remarkable cause assigned for the explosion is that the sharp claws of the cats inside clawing the sides of the tank must have produced a spark and ignited the contents. It is extremely doubtful whether a material no harder than a cat's claws rubbing on soft steel could ever produce a spark. It may be suggested, however, that cat's fur when properly agitated is one of the oldest and best-known sources of electric sparks. If the tank had been filled with illuminating gas alone, any sparks produced would of course have been harmless, since there would have been no oxygen with which the gas could ignite. Probably, however, as the tank at the start of the process is filled with air as well as cats, a gradual mixture takes place between the air and the gas as the latter is discharged into the tank, and thus an ignitable mixture may be formed. The mixture ignited was evidently not that which could produce complete combustion or the explosion would have been of greater violence.

# Trees in the Life of a Coal-Mining Community

By Karl B. Lohmann*

*SYNOPSIS—The suggestion is made that great benefits are to be derived from a policy where the liberal planting of trees in and about coal-mining camps prevails. Among the results are added health, added efficiency and added happiness.*

A writer tells of a 7-year old Arizona girl who stood dancing under a scrubby cottonwood tree clapping her hands to the rustling leaves. The stranger said to her mother, "Your little girl seems to be much delighted by the tree." "Ah, yes; she may well be so," said the mother. "It is the first tree that she has ever seen."

Fortunately not many of us have lived under circumstances like that. Yet often, with our tree-embowered mountain slopes, valleys and river banks, do we fully appreciate our heritage? Too often we pass trees by or seem to look beyond them, but somehow we look too seldom into them, as it were. They oftentimes become so much a part of our daily lives that we scarcely think of them any more than we do our everyday language. The influence of trees is none the less real; and just as truly as we should miss the power of speaking were it suddenly removed, in the same way we should feel keenly the part played by trees were they no longer with us.

For those people who have rocked and tossed on the ocean for several days, during which time as far as they might look there was nothing to see but sky and water, how at the sight of land again their hearts thrilled in beholding vegetation that never possessed for them a lovelier green and trees that never seemed more beautiful!

Without verdure, the expanse of ocean and sky at the time was perhaps sufficiently inspirational. It is much the same with the prairies. One can look over them and see for at least twenty miles in any direction without a shrub or tree to interrupt the eye. It fills one with an appalling sense of boundlessness. Yet such inspiration, either of the prairies or of the ocean, cannot compare with our simple woodlands, the soul-spirit of which is the tree.

MANY COAL-MINING COMMUNITIES TODAY ARE PRACTICALLY BARREN OF TREES

### Trees Regarded with Disfavor

Curiously enough, when our first coal communities were established, the surrounding trees were regarded as foes to be vanquished rather than as friends to be protected. As a result they were cut down ruthlessly, with no thought to the future. Not only, therefore, have our first great forests been denuded through the coal regions, but many coal-mining communities as they have grown up have done strangely without forest denizens in their midst. All of our towns were essentially tree communities when they were first settled, and as a result we have today the anomaly of many coal-mining villages practically without trees.

Perhaps the first question we are likely to ask ourselves is what particular good trees may possess in the life of a coal-mining community. In the first place, where intelligently grown, they have economic value. For instance, they add to the value of property. Real-estate people all over the country are aware of this, and whenever they want to lay out a large piece of land into building lots, they usually accompany the development with trees, because a person who is choosing a home, either to buy or rent, will be attracted to the home with surroundings that are pleasant. The street that has trees on it will without a doubt be preferred to the one that has none. So that either from the standpoint of the one who sells or the one who rents, a few dollars' expenditure in trees is well worth while.

More important still, trees have health value in the life of a coal-mining community. Everyone knows that trees are restful to the mind and soul, that they help to modify heat in hot weather, and hence add to the comfort as well as to the health of the people. Then, too, they help to purify the air by absorbing the carbonic acid gases that are exhaled by man, giving back pure oxygen that man needs.

Trees are not only of value economically as well as healthfully, but are of value aesthetically. First, this

*Landscape architect, Wilkes-Barre, Penn.

is true because of the beauty interest that the trees afford at all seasons of the year—in form, texture and color. Second, it is equally true because of the power trees have in uplifting the people. When a coal miner is compelled to choose between the doorstep of his home on a summer evening, where nothing but desolation crowds about him, and the saloon, where light, fellowship and good cheer abound, is it any wonder that he very commonly chooses the latter? Improve the surroundings of the miner's home, help him and show him the proper use of trees—how to make his dwelling a more attractive place—and his temptation to drink will be immensely decreased.

Also we might ask ourselves how trees might be most appropriately put to use in the life of a coal-mining community. In the immediate home surroundings of the miner, the use of trees commonly understood as such would often be quite absurd. Clearly it would not do for a person to nurture a mighty growing oak in a small backyard, together with a dozen equally luxuriant friends of the forest. So our choice of plants in this case must be confined generally to the very smallest trees, even venturing into the world of shrubs, which after all are essentially nothing less than diminutive trees.

No plantation should be the result of a hit-or-miss scattering of these over the home surroundings. We must strive to provide areas in the yard for special purposes, much like certain rooms in the house that are set apart for particular functions. For example, if there is to be a vegetable garden, then a piece of ground for such purpose ought to be set aside. If there is opportunity for a garden or open green space beside the house, every means should be availed of to make it for what it is intended. Successfully designed, the development of such an area out of doors may reveal privacy, permanence, peace, restfulness; may invite one in summer to outdoor life, may present views on a small scale and promise to grow lovelier and more valuable every year.

### Trees Most Suitable for Planting

Not only may there be practical use for the trees in serving to improve the immediate surroundings of the miners' homes, but they may admirably help to make attractive the streets of a coal-mining community. Their choice for this purpose, again, is governed by certain limitations. There is for example the question of hardiness; that is to say, trees which are chosen must be able to endure the climate, the soil, drought, smoke and dust. They must have strength to resist winds, sleet and snow, and they must have the ability to endure transplanting and to propagate easily. The trees must be immune from insect attack; they must have straightness and symmetry; they must give shade; they must be clean, and they must be long-lived. Examples of the best would include the oriental plane, the American elm, the red oak, and the sugar, as well as Norway maples.

And useful as trees may be in the beautifying of yards and streets, they can be put to no more worthy service than in helping to beautify pleasure grounds in a coal-mining community. Trees, indeed, are an invaluable accessory of most pleasure grounds and play areas.

The usefulness of play as well as the need for it around school buildings is generally admitted. There ought certainly to be more general provision of the kind. Trees intelligently planted will be fruitful, not only in making the school grounds a pleasanter place wherein to play, but also in adding to the beauty and attractiveness of the school.

A great many coal-mining villages, moreover, possess other places of work besides the school, and they should be remembered in the way of pleasure grounds for their workers. For example, there are factories where often it would be practicable to provide near-by park areas with plenty of shade and verdure, where employees might spend health-building noon hours. Pleasant grounds to look out upon occasionally help to ingratiate further the employer in the hearts of his toilers.

### Where To Plant Trees

The typical center of all workaday activities in a coal-mining community is of course the coal mine. The rumble and tear of breakers and tipples, with their outlying workings, is familiar to those who live in such communities. What about introducing trees into the surroundings of those breakers? Most breaker-yards from the standpoint of appearance are certainly chaotic and desolate. Some few mine officials insist that "breakers are breakers, and you cannot make anything else out of them." Nevertheless attempts are being made, and more will be made, to change the appearance of such surroundings. Efforts of this kind will benefit all concerned—the pride of the owners and operators and the comfort and pleasure of the men who emerge from the darkness of the earth. The green of the trees will help to reignite the latter's hope and enthusiasm in life, to say nothing of what it will do ultimately toward helping in the uplift of living in the coal-mining communities.

IS IT ANY WONDER THE MINER PREFERS THE SALOON TO THIS?

Urgent as may be the need for trees in creating pleasure grounds associated with the various places of work, the call for them in helping to create public breathing places, playfields, park areas for the community at large to enjoy is equally pressing. The bordering lands just outside of the village or town, or those areas still unused and suitable within, ought to be preserved and developed for such purposes. This is not only a timely suggestion for the people who are to enjoy them in this day, but it is a provision as well for those still to come. Nearly every community has hope of growing and developing. Why not initiate early in the life of a mining town a park policy that will make for the beautification and betterment of that future community?

And for this kind of development, or any others, the earlier that requisite trees are planted the sooner will be enjoyed their maturity as well as fruitful service for good.

The value of trees in the coal-mining region is by all means real—the need of them unmistakable. They have economic value, they have health-giving attributes, and they are endowed by God-given beauty. Let us pledge ourselves, therefore, to the very prompt reinstatement of these, our forest friends. And in so doing we shall contribute to a score of mining towns and villages added efficiency, added health and added happiness.

## Coal Situation in the Warring Countries

The American Association of Commerce and Trade in Berlin makes the following interesting analysis after a year of the war:

The coal production by metric tons of the important European countries in 1913 is shown in the following figures:

| Country | Coal | Brown Coal | Total |
|---|---|---|---|
| Germany | 191,511,000 | 86,475,000 | 277,986,000 |
| Great Britain | 287,044,000 | ..... | 287,044,000 |
| Austria-Hungary | 17,762,000 | 35,663,000 | 53,425,000 |
| France | 40,129,000 | 793,000 | 40,422,000 |
| Belgium | 22,846,000 | ..... | 22,846,000 |
| Russia | 30,745,000 | ..... | 30,745,000 |

The coal output of Great Britain is exceeded by the United States only. The British exports in 1913, also in metric tons, were as follows:

| | | | |
|---|---|---|---|
| France | 12,775,000 | Denmark | 3,034,000 |
| Germany | 9,646,000 | Norway | 1,900,000 |
| Italy | 8,952,000 | Spain | 3,648,000 |
| Russia | 5,999,000 | | |
| Sweden | 4,553,000 | Total | 50,507,000 |

The British output in 1914 was reduced by the following causes:

1. Approximately 200,000 miners joined the colors.
2. Lack of timber used for mines, which was declared as contraband by Germany in regard to shipments from Russia and the Scandinavian countries.
3. Difficulties in transportation.
4. Strikes.

Therefore until December, 1914, exports decreased by one-half as compared with 1913, and for 1915 the decrease in domestic consumption is estimated at 27,000,000 tons on account of reduced activity in the industries, and the decrease in total production is figured at 53,000,000 tons. Coal exports in time of peace take place from South Wales via Cardiff, and from Newcastle and the Tyne shipments are made to London, Germany, the Scandinavian countries and Russia.

Decreased outputs resulted in higher prices and in an embargo on all exports, excepting to the British colonies. In order to put an end to continued rise of foodstuffs, increased cost of labor and increasing cost of coal, maximum prices for coal may be established. The Scandinavian countries seem to have insured their English coal supply by energetic measures.

Different, however, is the situation in Italy, which country, without any notable coal production of her own, in 1913 imported from England 9,000,000 tons and from Germany (including coke) 2,000,000 tons. Shipments from England in the period from January to May 11, 1915, were 1,250,000 tons less as compared with the same period of former years, while shipments from Germany increased by 100,000 tons.

Judging from all indications, it will be difficult for England to satisfy Italy in the matter of coal supply, inasmuch as freight charges caused by the lack of steamers have considerably increased. According to information received from Rome last March, increase in ocean freight rates varies from 600 to 700 per cent., and it is expected that the announced American shipments will be very expensive for the same reason.

At a consumption of normally 61,000,000 tons the domestic production reaches 41,000,000 tons per year. Imports take place from England (12,000,000 tons) and Germany (5,000,000 to 6,000,000 tons), with the remainder from Belgium.

The territory in northern France occupied by German troops furnished in normal times 27,500,000 tons, and the southern districts of St. Etienne, Alais and Le Creusot only 12,500,000 tons. Considering the lack of labor and difficulties in transportation at the present time, the entire French coal production can be estimated now at 6,000,000 instead of 41,000,000 tons, as in normal times.

Shipments from England are decreasing, and in the period of January to May 11, 1915, shipments decreased by 1,000,000 tons as compared with the same period in times of peace. The Paris *Temps* states that shipments to Paris in the second half of November, 1914, amounted to 80,000 tons as compared with 300,000 tons, which are required normally.

Coal prices and ocean freight rates have continued to rise since January, 1915.

European Russia has a peace production of 31,000,000 tons of coal per year, while imports in 1913 amounted to 9,000,000 to 10,000,000 tons, of which 6,000,000 came from England and 2,500,000 from Germany.

Since the coal district of Dombrawa, in Poland, has been in the hands of the Germans for some time a loss of 7,000,000 tons must be figured, while the production of the coal district of Donez (Charkow) has decreased by 30 per cent. Since English imports via the Baltic and the Black Seas have ceased entirely, there remain for domestic consumption approximately 20,000,000 tons only.

On the other hand, it should be remembered that in Russia oil, wood and peat are used to a great extent in place of coal.

For reasons that shipments of American coal via Vladivostok are very expensive, owing to high cost of transportation via the Trans Siberian railroad, it is evident that the Russian coal supply is rather limited.

In spite of increasing production during the war, the output is remaining behind normal. Exports to Italy, France and Russia have ceased, while considerable shipments are being made to Austria and other neutral countries, such as Sweden, etc.

English imports, of course, usually amounting to from 9,000,000 to 10,000,000 tons per year, have stopped. The importance of coal exports in exchange for foodstuffs manifests itself now in the trade with Rumania, as it formerly did with Italy.

As things stand today Germany and Austria dominate the coal market in northern France, Poland and the Balkan states, and it seems that they are able to meet the demand without any difficulty.

Switzerland is not furnished now with coal from France or Belgium, but is well supplied from Germany. Germany need not fear a coal famine.

# An Interesting New Pennsylvania Coal Mine

By R. G. Johnson*

*SYNOPSIS—Description of a plant where the construction work was designed and carried on with an idea of permanency. The shaft is concrete-lined and fireproof. Its general design is unique. The surface equipment at the mine is the last word in uptodate engineering.*

Modern shaft-mining plants designed for permanency are in most locations as economical today as the plant which was formerly considered a 15-yr. or 20-yr. installation. Concrete-lined shafts with steel buntons in many parts of the country will cost no more than timbered shafts. Steel construction will cost only little more when erected over the shaft than the timber headframe, tipple and bins. It must seem folly, therefore, in a long-time operation to put up timber headworks in any but a timber country, remote from the steel-making centers. Modern power-plant equipment, with its many steam- and labor-saving accessories, is higher only in first cost and soon more than pays for its incidental increase in price. All along the line of mining-plant requirements the higher first-cost argument against the better equipment is receiving its death blow.

The Ford Collieries Co., of Detroit, owning and operating mines with a daily capacity of 5,000 tons in the Freeport seam of coal about 17 mi. north of Pittsburgh, Penn., was firm in its belief that the better equipment is the cheaper when planning the construction of the plant for its new Berry No. 3 mine, located at Bairdford, Penn., about 3 mi. from Curtisville on the Bessemer & Lake Erie R.R. In this immediate section the upper and lower Freeport seams come together about 200 ft. below the surface, the two being separated by a 5-in. parting of slate. The country is not a wet one, as far as sinking goes, but the coal has some water in spots.

*Engineer, the Dravo Contracting Co., Pittsburgh, Penn.

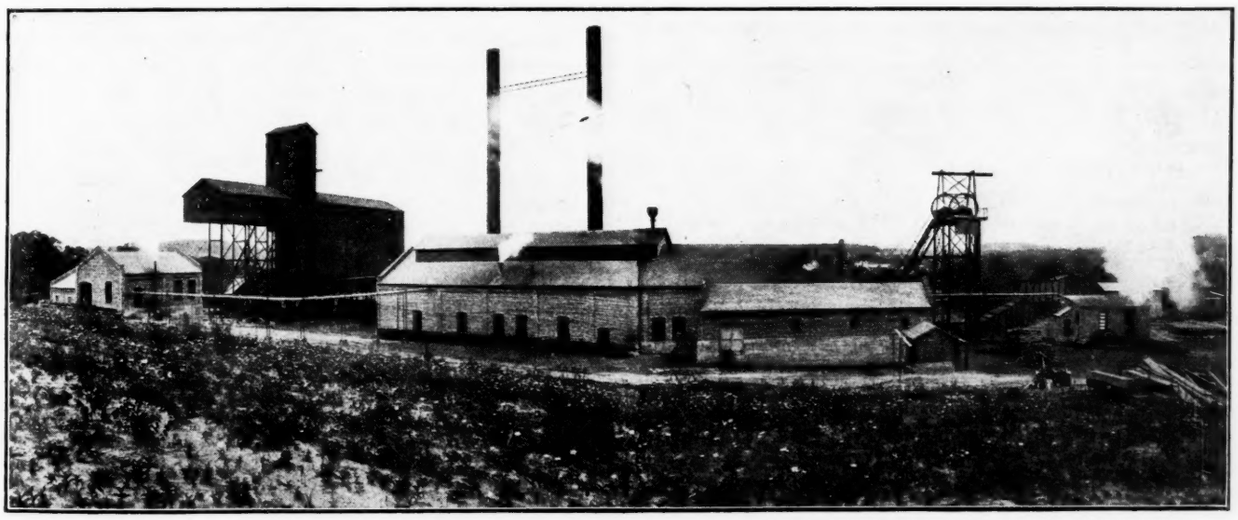
The area tributary to the new shafts is about 2,500 acres, the seam averaging a little more than 6 ft. in thickness. The floor of the coal is generally regular in grade and the roof is of firm sandstone, so that other roof support is seldom required. Various analyses of the coal show it to conform closely to the record given below:

| | | | |
|---|---|---|---|
| Moisture | 0.99 | Volatile carbon | 37.58 |
| Sulphur | 0.82 | Ash | 4.64 |
| Fixed carbon | 57.78 | B.t.u. | 14,709 |

About 25 per cent. of the output of its various mines goes to the coal company's allied industries in Michigan, the remainder being shipped to various railroads for locomotive fuel.

## General Design of Shaft

At the start, A. R. Pollock, the general superintendent, talked over the matter of shafts with the Dravo Contracting Co., of Pittsburgh, and his requirements as to car size and output were incorporated into plans and specifications, the general design being a concrete-lined section, with flat sides and arched ends.



SURFACE PLANT, BERRY NO. 3 MINE, BAIRDFORD, PENN.

With the grouting process for sealing water-bearing strata penetrated in the sinking, developed as it is, it is possible to sink and line a shaft with concrete under most conditions without water rings. By forcing in cement mixed with water to the consistency of a cream, either in the rock strata before sinking through them or through the lining and into the crevices, the shafts can be made practically water-tight. This feature in the new specifications for concrete-lined shafts appealed most strongly to the coal company, and was adopted by it as being certainly an advisable measure to take.

There were no interruptions to the operation of sinking or lining, nor were there any unusual circumstances delaying progress. Each shaft was sunk a distance of 40 ft. before a stretch of lining was started. Jackhamer drills were used exclusively in the sinking, always hand-

ling their work in good shape. The rock consisted for the most part of clay shales and sandy shales, with very little sandstone and limestone. There was therefore little rock in the shafts that could be used for concrete aggregate, it being necessary to haul most of the sand and gravel nearly 4 mi., 3½-ton Packard motor trucks hauling the materials.

### Fireproof Construction

The shafts were designed to be as nearly fireproof as possible. The linings are of concrete, as is the partition wall separating the supply hoistway from the air compartment in the air shafts. This wall is 5 in. in thickness, reinforced with triangular mesh, and was erected in panels between the steel 8-in. H-beam buntons, laid on edge on 5-ft. centers. The stairway is of structural steel, the treads and platforms being of Diamond raised plates. The accompanying photograph of the air shaft shows a view looking down at an angle from the top toward the stairway end.

The hoist-shaft buntons are also of steel, a 34-lb. section of 8-in. H-beam being used here as in the air shaft. The guides in both shafts were of prime long leaf yellow pine, in long lengths. The splices in the guides in the shaft were different from those seen in the photographs of the shaft tops, which show a short half-together splice, whereas butt splices were used below the surface.

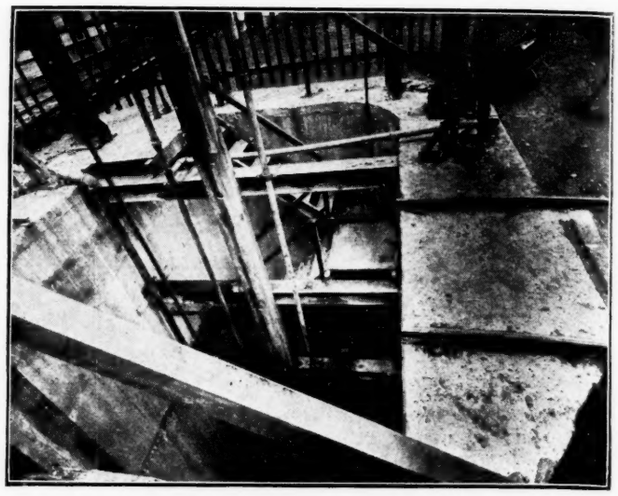
The arches at the hoist-shaft bottom are unique in that buntons are left out entirely, thus obviating the necessity for the concrete columns usually placed on each side of the shaft at the junction of the shaft and the arch. This column is usually placed as a support for the ends of the buntons to which the guides are attached. The change made it necessary to stiffen the guides by placing a steel channel behind one end guide and an

LOOKING DOWN THE HOIST SHAFT

I-beam between the two middle guides. The decided advantage of course is the absence in the shaft bottom of the bulky construction which always hinders the passage of air at this bend in the air course, and which always takes up space where roominess is so much desired.

What water was struck in the shafts was grouted off through the lining at a very low cost, so that the shafts are absolutely dry.

The power plant at this mine of the Ford company consists of two batteries of two boilers each of Erie City horizontal return-tubular type, fired by Taylor stokers fed from hoppers filled by a belt conveyor from the coal tipple. Green fuel economizer blowers produce forced draft, the blower engine driving the stoker shafting.



SHOWING STEEL STAIRWAY IN AIR SHAFT

Ashes from the stoker grates are hauled in an electric larry through a tunnel built for this purpose underneath the front of the boilers and carried out at grade to dump about 200 ft. away. A 1,500-hp. Cochrane feed-water heater with two Dean Bros. feed pumps supplies the boilers.

### Engine-Room Equipment

In the engine room two Erie ball engines drive two General Electric 200-kw. direct-current generators, the exhaust steam being piped in trenches to the heater in the boiler room, where is situated also the engine for hoisting the man and supply cage in the air shaft. This engine is a Vulcan 16x20 geared, equipped with a Nicholson overwinding device with an 84-in. drum counterweighted, the counterweight being operated in the air compartment of the air shaft on guides fastened to the center buntons. A Westinghouse 3-phase 2,200-volt alternating-current motor generator of 60-kw. capacity is also located in this room. This unit supplies light to all houses in the mining town. The main hoist engine is a 22x36 Vulcan with conical drums 8 ft. in diameter. The headframe and tipple are the work of Heyl & Patterson, of Pittsburgh. The fan at the air shaft is a Jeffrey, reversible type, of 350,000-cu.ft. capacity, with an Erie ball-engine drive.

The plant is designed to handle 3,000 tons of coal per day, and the life of the mine is figured at 35 yr. The shafts and their appurtenances, together with all foundations and mine buildings, were designed and built by the Dravo Contracting Co. under my supervision, with Samuel Vance as resident superintendent. G. G. Long was engineer for the Ford Collieries Co.

**Some Time Ago a Fatal Accident Occurred** in consequence of a miner heating his explosive in an oven. This is perhaps a much more common method of "getting the explosive into condition" than is usually suspected. Among other ways of attaining the same end is the practice of carrying the explosive next to the body. The miner who is guilty of this habit may indeed be said to be a walking danger, not merely to himself, but also to his companions. The advice to the miner who does these things may be given in one word: Don't.

# New York City's New Coal Specifications

*SYNOPSIS—Comments on the new coal specifications from some of the leading members of the local trade are presented herewith. The penalties prescribed are regarded as excessive and the ash- and heat-unit standards as impractical. Exception is also taken to method of sampling.*

The tentative specifications for the purchase of coal for the various New York city departments which were printed in *Coal Age* of July 24 are soon to be taken up for final action by the Board of Estimate and Apportionment. City Chamberlain Henry Bruere, who is chairman of the Central Purchasing Committee, has sent a letter to all dealers doing business with the city asking them to submit any criticisms or suggestions they may have concerning the city's way of doing business. Some of the dealers have already replied to this letter, and Mr. Bruere will embody these criticisms and suggestions into a report. Should the trades desire it, there is no doubt that they will be accorded a hearing, at which time they can have the opportunity of presenting their complaints.

### Pattison & Bowns Calls It Hardship

Pattison & Bowns is of the opinion that "the standard in force is a great hardship to anyone doing business with the city and is not for the best interests of all concerned, since it tends to lessen competition in many ways.

"The standard of ash called for in all sizes of anthracite coal is too low and can be obtained only from a few small operations. It is a well-known fact that these smaller mines which produce an unusually high grade coal send their product to the markets that pay the best price, and only send it to tidewater during times of depression. The standard of ash should be raised so as to conform with the standard of the coal produced by the majority of the large companies. This is especially so for the reason that the City of New York does not pay a premium, and it is not fair to have a standard that is so difficult that it can only be reached occasionally.

"The B.t.u.'s called for by the specifications are too high and should be lower for the same reason. The method of dividing the city into zones is unwise for the reason that a wholesaler finds it very difficult to bid on a zone which contains institutions that buy by cargo lot and also require retail deliveries. Under the old method of buying coal for each institution, wholesalers were able to bid on every institution that could receive boatload deliveries.

"By the present methods, many institutions of this character are put in a zone with others that require truckload deliveries. This is surely a hardship to the wholesalers and is not in the interest of the city."

### Impractical Features

An official of one of the companies which has transacted considerable business with the city characterized the specifications as "the most undesirable that have ever been offered to the coal trade." He says further:

These new specifications provide for raising of the standards and doubling of penalties, while there is an absence of any provision for arbitration of disputes, lack of any attempt to correct the improper methods of sampling, and lastly, an arbitrary power is still invested in the city laboratories.

In view of the fact that the city does not pay premiums, it seems unfair to further raise the standards. It has proposed to make the ash standard on No. 3 buckwheat 16 per cent. and the B.t.u. standard 12,400. This is restricting the ash standard three points, from 19 per cent. down to 16 per cent., and raising the B.t.u. standard 400. The standard on sizes has also been raised.

According to the new specifications, coal must pass through a clear opening of $\frac{5}{16}$ in. and over a clear opening of $\frac{3}{4}$ in. The standards of the large mining companies, upon which dealers are dependent for their supplies, are for coal to pass through an opening of ⅛ in. and over an opening of $\frac{1}{16}$ in. The large producing companies do not seek the city business; they naturally will not guarantee the specifications. Therefore, the dealer is obliged to guarantee to the city a product which he cannot buy. In the case of bituminous coal, the ash percentage has been lowered from 10 per cent. to 9 per cent., which means raising the standard 1 per cent. The B.t.u. standard has been increased from 13,800 to 14,000.

### Increased Penalties

In addition to raising the standards as stated, the penalties have also been increased. Coal containing ash up to 12 per cent. is penalized as formerly at the rate of 1 per cent., but should the ash exceed 12 per cent. the penalty is double; that is, deductions are made at the rate of 2 per cent. for ash in excess of 12 per cent. The same system is proposed with respect to the British thermal units. The penalty is 1 per cent. for each 100 B.t.u. down to 13,500 and 2 per cent. below 13,500.

A contractor could very easily suffer a penalty which would amount to practically the confiscation of his coal. Take such a product as No. 3 buckwheat, which is sold to the city very often on the basis of not over 60c. per ton at the mines—the delivered price on this would be approximately $3 per ton. A penalty of 20 per cent. would not only wipe out the profit on the coal, but the entire cost of the coal itself, and a 20 per cent. penalty would not be at all unusual under these specifications. The same would be equally true of bituminous.

The "remission clause" which is to be adopted for the purpose of allowing a contractor to average up some of his losses is entirely inadequate and will not prove any inducement to an intelligent bidder. With the system of sampling and analyzing designated and with no proper provision for arbitration of disputes and absolutely no adequate check analysis provided for, a contractor would not be able to benefit by this "remission clause." This provision has been explained in a previous article (see p. 122 of the current volume).

When the contractor delivers coal which is subject to a penalty, he may be permitted to deliver a like tonnage of better coal; and if this analyzes above the specifications, he will be given credit for a premium on as much tonnage as that on which he has been penalized, excepting that he shall receive no credit against penalties on the 2 per cent. basis. In other words, if a contractor has supplied coal which is penalized on the 2 per cent. basis, his case is hopeless. In order to receive a remission on even a portion of his losses, he would be obliged to purchase a grade of coal which is practically unobtainable, and even granting that such coal could be had, the extra cost of same would be prohibitive.

In conclusion, it may be said that for a coal dealer to obtain city contracts he must sell cheaper, submit to more discourteous treatment, wait longer for his payments, allow more unwarranted deductions and supply better coal than he does to his ordinary customers. The number of bidders on city contracts has been gradually diminishing, and competition will grow steadily less until specifications are adopted that give the dealer a better chance. Raising standards and increasing penalties, which are already doubled, is the surest and easiest way to discourage competition.

### Poor Sampling Causes Trouble

Another dealer comments further on the fact that the penalties are such that they could readily more than absorb the profit. He says:

When it is considered that the city penalizes two or three times for the same offense, it is apparent to anyone that a very slight falling off in quality entails an actual loss. There is usually only about 10c. per ton profit in coal here, and for this small profit dealers have for years been guaranteeing to meet the specifications at the same prices and even less than they are obtaining from private consumers, without any guarantee as to quality.

During the past five years a certain dealer has delivered to the city on various contracts approximately 1,000,000 tons of bituminous coal, the average price of which has been $1.04 per gross ton at the mines. Considering that during the five years there have been a great many market disturbances, this average is surprisingly low. In fact, the highest prices paid by the city during that time are far less than the average private consumer was obliged to pay.

There has been also a great deal said about the inferior quality of city coal based upon chemical analyses made by the Central Testing Laboratory. While the work of this laboratory may not be questioned, the samples are often improperly taken.

There has been no uniform system of sampling, and in many cases this has been carelessly and improperly done. There have been instances of variations of 1,000 B.t.u.'s in two deliveries of coal made to different places, both out of the same shipments. There have also been cases where coal shipped to the city has shown extremely poor results, while a shipment of exactly the same coal to others has been analyzed with favorable results. This probably has been the cause of more dissatisfaction than any one thing.

[It would be interesting to hear from others on this subject.—Editor.]

# The Trend of Conditions on New Coal Contracts

*SYNOPSIS—Prices on business on the Atlantic Seaboard indicate a general firming up of that market. However, some grades are still being negotiated at minimum prices. In Ohio some big state contracts have been closed at figures substantially less than in previous years. A large Middle Western contract shows a better price than the old figure.*

In the coastwise trade the few contracts that have been made the past month show the general firmness of the market, particularly on the Southern coals. While the Panama R.R. contract award (No. 1327, pp. 367, 446 and 532) was mostly at $2.60 f.o.b. Hampton Roads for Pochahontas, it is generally understood why the order was taken at so low a figure, and it is perhaps the exception that proves the rule. The proposals submitted to the Boston & Maine R.R. for locomotive supply (No. 1313, p. 367) were apparently not attractive enough to induce buying, the announcement being made (p. 576) that no further action would be taken for the present. The price paid for coal alongside the "Kronprinz Wilhelm" at Norfolk, Va. (pp. 412, 578), is a straw showing the firmness at Hampton Roads.

The active demand offshore is an important factor in the situation. The departure of the first steamer on regular service to Alexandria, Egypt, notice of which appears in this issue, and inquiries such as those from Liverpool and the Azores (p. 492), Italy (No. 1479, p. 531) and Denmark (p. 532), give some reason for predicting a strong $2.85 price at Hampton Roads, at least for the balance of the calendar year.

For distribution inland the trend is not so pronounced. Recent circulars of Boston agencies announcing a price basis for the year beginning Apr. 1, 1916, are not having a wholesome effect on the current market. Even small contracts like that at Reading, Mass. (No. 1417, p. 489), will probably be closed at as low a contract figure as has prevailed this year. At retail the Auburn, Maine, city supply (p. 532) is a sample indication of the fair prices being realized by most local dealers throughout New England.

Such coal from the Pennsylvania districts as is usually applied to contracts like the Connecticut Co.'s (No. 1420, p. 489) and the Berkshire Co.'s (No. 1427, p. 489) is still realizing minimum prices. An instance is the Massachusetts Training Schools (No. 1224, pp. 245, 578), where the order was placed at prices that net $1.28 f.o.b. mines.

The Crocker-Burbank Coal contract, Fitchburg, Mass., in the current issue, recently awarded to shippers of Georges Creek at full circular prices for delivery via water to Boston against competition of Pocahontas and New River, is further evidence of the market's strength.

Most of the large consumers in New England, their contracts having been very largely placed months ago, are beginning now to press shippers for extra deliveries in order to be protected against any possibility of car or labor shortage later.

In the Philadelphia market the most important contracts under consideration have been the 600-ton order for White Ash buckwheat coal for the Philadelphia County Prison (No. 1409, p. 578) and the deficiency contract for the Bureau of Water (No. 1516, p. 577). On the first contract there is usually very little competition, and it was again awarded to the same company which has supplied the coal for a number of years. The bids on the water bureau contract have not yet been sufficiently tabulated to pass judgment on the results.

Usually at this time of the year many of the anthracite companies begin to look after their contracts with steam-coal consumers, a large number of which expire at the first of the coming year. However, owing to impending disturbances in the mining region it is quite likely that the companies will not enter into new contracts, as this is the precedent on similar occasions. In several instances it is already reported that the operating companies are urging their consumers to stock up at the contract price and in addition are offering to allow the present contracts to run until Mar. 31, 1916.

## Ohio

Generally speaking, large consumers in Ohio are able to buy their fuel for the coming year at a cheaper figure than prevailed in 1914-1915. Most of the contracts awarded at this time are for a coal supply beginning about Nov. 1 and continuing for either six months or a full calendar year.

The contract awarded by the Director of Public Safety a few weeks ago for the coal supply for the Scioto River pumping station, the garbage-reduction plant and the

municipal light plant (No. 1090, pp. 117, 366, 410) illustrates the cheaper cost of coal. For the six months beginning Nov. 1 the West Virginia mine-run for the pumping station will cost $1.42 per ton, delivered on the switch, as compared with $1.54, the price paid for the same grade of coal in February, 1915, $1.58 per ton paid in the last half of 1914 and $1.72 the first half of last year. The department also paid $1.19 per ton for Hocking nut, pea and slack as compared with $1.20 for the latter part of last year and $1.39½ for coarse slack the first half of 1914. For the garbage-reduction plant the department paid $1.19 for Hocking nut, pea and slack as compared with $1.19½ per ton the first half of 1915, $1.20 the last half of 1914 and $1.39½ for the first half of 1914.

The contract to supply 10,000 tons to the Cleveland State Hospital (No. 1299, pp. 325, 518), providing for Ohio mine-run, delivered on the institution switch at $1.79 per ton, compares with $1.97½ paid last year for the same grade of coal.

### Middle West

On the water-works contract at St. Louis (pp. 117, 412), involving 34,000 tons of egg and 37,000 tons of screenings, the net price on the lump was 3c. higher than last year and on the egg ½c. lower. The freight rate is also 5½c. higher. The contract for supplying the penitentiary at Jefferson City was let at a price 63c. per ton higher than last year, but this year's contract is on a specification basis, which brings the price slightly below that of last year.

## Extracts From a Superintendent's Diary

It takes an occasional trip through a cotton mill or a steel mill to make a mining man realize that the lot of the mine laborer is not so terrible after all.

Because mining villages are generally located on branch lines, 10 miles from nowhere, and moreover because miners are denied much of God's sunlight, our city friends assume that no man would stick to mining after once learning that he could make a living at a city occupation. They have become so accustomed to crowds and the excitement of city life that the isolation of our villages and the stillness within the mines suggest the fate of a Siberian exile to them.

But when our men try their luck in the cities they often find the pace too swift and return at the first opportunity. The accounts that they give of their adventures show that it is not homesickness alone that brings them back.

One of our men who answered the call of the wanderlust by going to a city and accepting work in a cotton mill remarked when he returned that whenever he had attempted to draw a full breath he found himself wedged in between two machines. Another of our citizens who tried his hand as a laborer at a steel plant informed us, when asked about his adventures, that every time he paused to collect his thoughts a rod of hot metal would start after him and chase him out of the building before he could recall what he was supposed to be doing.

Men who have made such journeys into the outside world become, on their return, prominent forces for progress in our community. Not only have they become reconciled to the labor assigned to them by Fate, but they have learned that the new-fangled ideas about sanitation and food inspection have not been introduced into mining camps for the purpose of hampering the poor and lowly and keeping them under control, but are of vital importance.

They have witnessed the workings of similar measures in crowded tenement districts, where everyone accepted them as a matter of course; and now on their return they realize how little attention has been given to such regulations and as a result how much more fatal some diseases prove in spite of the more healthful surroundings of the average mining village.

We have several cases of typhoid in camp now, and today I chanced upon a group of our citizens in conference with our camp physician. In the group was John Taylor, recently returned from a sojourn at a cotton-mill village located on the edge of a large city.

Every suggestion that the doctor made recalled to Taylor's mind some rule and regulation that he had seen enforced, and his comments on what he had seen not only made it possible for the men to understand what the doctor was trying to explain, but gave the doctor new ideas as well.

This discussion of regulations necessary in crowded villages led to a pretty full understanding of the advantages that our citizens really enjoy in comparison with their city brothers—advantages that have always been unappreciated and taken as a matter of course; and as a direct result, our doctor was surprised to find that no suggestion that he felt called upon to make was now considered too radical by his audience.

Later in the day I met him again, and he had become very enthusiastic about the prospects of making our camp a model one from a doctor's standpoint; he is already planning to call the attention of the State Medical Society to the work that he is undertaking.

## COMING MEETINGS

**National Safety Council** will hold its fourth annual safety council at the Bellevue-Stratford Hotel, Philadelphia, Penn., Oct. 19-21, 1915. Secretary, W. H. Cameron, Chicago, Ill.

**Engineers Society of Northeastern Pennsylvania** will hold a special meeting at its rooms, 415 North Washington Ave., Scranton, Penn., on Thursday, Oct. 28, 1915, at 8 p.m. The object of the meeting is to take corporate action on the proposed issue of $15,000 4-per cent. 10-year bonds, for the purpose of refunding the outstanding floating indebtedness of the society and furnishing money for its general purposes. Secretary, T. F. McKenna.

**First Annual State-Wide First-Aid Meet** will be held at Bicknell, Ind., Oct. 30, 1915, under the auspices of the local unions of the United Mine Workers of America and the operators of Knox County, the Bureau of Mines and the American Mine Safety Association. Secretary, William Bogle, Bicknell, Ind.

**United Mine Workers of America** will hold its annual convention in St. Louis, Mo., beginning Jan. 17 and continuing for three weeks. Secretary-treasurer, William Green, 1102-1109 Merchants National Bank Building, Indianapolis, Ind.

**American Society of Mechanical Engineers** will hold its annual meeting Dec. 7-10, New York City. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

**Engineers' Society of Western Pennsylvania** holds its monthly meeting third Tuesday of each month; section meeting, first Tuesday. Secretary, Elmer K. Hiles, Oliver Building, Pittsburgh, Penn.

**Western Society of Engineers,** Chicago, Ill., holds its regular meeting first Wednesday meeting of each month, excepting July and August. Secretary, J. H. Warder, 1785 Monadnock Block, Chicago, Ill.

# The Labor Situation

*SYNOPSIS—West Virginia as a state opposes the increase in freight rates on coal. The investigators of the Public Utilities Commission declare just what coal freightage in Ohio costs the railroads. The main features of the Rockefeller-King contract. Lawson is admitted to bail.*

Resolutions condemning the proposed action of the railroads have been passed by the Chambers of Commerce of Charleston, Fairmont, Clarksburg, Wheeling and Huntington. The United Commercial Travelers at Charleston have passed a resolution condemning the increases. The miners' organizations at various places demand the old rates, and the state Public Service Commission, with its attorney, S. B. Avis, and its railroad representative, E. E. Winters, has visited Washington to protest to the Interstate Commerce Commission. The West Virginia papers have practically all declared the impost of higher freight rates destructive to business, and the West Virginia Coal Association, through its attorney, Z. T. Vinson, its president, T. E. Houston, and its secretary, W. H. Cunningham, is contesting the fairness of the increase.

Most of the arguments suggest that the increased freight will involve a reduction of 15c. per ton on all the coal mined in West Virginia and that the profits would be more than wiped out by such a change in freight. But of course many of the market prices will be automatically raised 15c. per ton by the increased transportation charge, and the action will be more likely to limit the further growth of the West Virginia market than to curtail its present well-extended area.

The West Virginia operators have faith that the railroads will decide not to make the proposed increase. Perhaps the intention is only to bluff off the attempt of the Ohio operators and public in seeking to reduce Ohio rates. But in any event it is felt that no change will be made. One organization has called for $50,000 from its members for a defense fund, but only $20,000 has been actually asked for, and it is likely no more will be paid in unless the fight appears more hopeless than it now seems to be to the contestants.

On Oct. 1 the Railway Commission of West Virginia filed a statement with the Interstate Commerce Commission rejecting a suggestion that it arbitrate the freight rate differentials between West Virginia, Ohio and Pennsylvania bituminous coal fields on so-called lake-cargo coal or coal which goes in solid trainloads from the mines to lake ports for transshipment. The commission declares that it cannot arbitrate and has no authority to make its findings binding upon the coal carriers.

The investigators appointed by the Public Utilities Commission to examine the books of the Hocking Valley Ry. have filed their report. The cost of moving coal is as follows:

| Journey from Nelsonville to | Distance, Miles | Cost of Freight, Cents | Mills per Ton-Mile |
|---|---|---|---|
| Toledo | 181 | 46.68 | 2.579 |
| Fostoria | 150 | 37.71 | 2.514 |
| Marion | 107 | 31.50 | 2.944 |
| Delaware | 85 | 25.83 | 3.039 |
| Columbus | 61 | 20.55 | 3.369 |
| | 584 | 162.27 | 2.779 |

To these figures for freight should be added 1.88c. when the coal is unloaded at the docks and wharves for Lake shipment.

### Ohio Miners Start Coöperative Stores

The miners in Ohio are preparing to follow the example of the Illinois mine employees in establishing coöperative stores. This movement is to be praised whenever there seems a prospect of success. Just at present, however, the Ohio miners are suffering from the past dullness and the lengthy strike and are not sure of a busy winter season; so conditions are not favorable for starting stores. Moreover, the merchants having helped to tide the miners over the idle period are entitled to better treatment.

It is quite likely that the refusal of these merchants to bankrupt themselves by giving unlimited credit is the cause of their being penalized at this time by the starting of coöperative stores which will themselves be equally unable to carry their clients through a long period of idleness. Even the bitterness of the experience in coöperative store business is, however, to be welcomed for the miners. Only by having an initiation into the costs and losses of such business will they learn to maintain a charitable outlook toward these small capitalists.

Joseph Kobylak, representing the miners of Rush Run, is discussing this matter with William Roy, vice-president of subdistrict No. 5 of district No. 6, the eastern Ohio field. Stores are already being operated at Adena and Fairpoint and it is proposed that others be opened at Rush Run, Maynard, and Midway. If enough stores can be started to make the establishment of a wholesale house advisable this will be provided by the coöperation of the various local stores.

### Colorado Fuel and Iron Co.'s Contract

The contract submitted by the Colorado Fuel and Iron Co. to the representatives of the miners on Oct. 2 and accepted by them subject to a general referendum provided for: 1. The representation of the men at each camp on the basis of one delegate for 150 wage earners. Each camp is to have at least two representatives. 2. The holding of district conferences, joint committees and joint meetings. 3. The prevention and adjustment of industrial disputes. 4. Social and industrial betterment.

For purposes of mediation the company's camps are to be divided into five districts—the Trinidad, the Walsenburg, the Cañon, the Western and the Sunrise, Wyo., districts. The Cañon district comprises all the mines in Fremont County. The Western district includes all the operations on the Western Slope in Colorado.

The delegates of the miners and the company at each district conference will select from their number joint committees, each composed of six members. These committees will be as follows: One on industrial coöperation and conciliation, one on safety and accidents, one on sanitation, health and housing, and one on recreation and education.

The company pledges itself to observe all federal and state mining laws and not to discriminate against any of its employees on account of membership or nonmembership in any society, fraternity or union. The right to hire and discharge, the management of the properties and the direction of the working forces are vested exclusively in the company and are not to be abridged by anything contained in the agreement.

Under the plan the company will post a list of offenses for which dismissal may be made without notice. Employees may not be dismissed for other offenses except after notification that a repetition will result in dismissal, but the company still reserves the right to relieve employees from duty for lack of work. Employees are guaranteed the right to hold meetings, to purchase supplies where they please and to employ checkweighmen.

### How Miners' Grievances Are To Be Settled

Any miner or group of miners aggrieved at any working condition must take the matter to the elected representative of the camp. He is to try and reach an agreement with the foreman or superintendent. Failing that, he is at liberty to appeal to the president's industrial representative, who is at present David Griffiths, or to the higher officers of the company, finally reaching the president, J. F. Welborn.

But another method of settlement is provided. The miner or miners may have a hearing before the district joint committee on conciliation. This committee may either hear the case or appoint an umpire, whose decision shall be binding on both parties. If the committee fails to reach an agreement, it shall be settled by arbitration or by reference to the Colorado State Industrial Commission.

The company provides that the representatives of the men shall not be discharged unjustly or discriminated against in the apportionment of cars or work, and any representative who believes he has a grievance may appeal to the State Industrial Commission. The agreement is to remain in force till Jan. 1, 1918, and shall continue in force thereafter subject to revision should either party give 90 days' notice that such revision is desired.

### Provisions Relating to Living Conditions

The employees are guaranteed that the charges for dwellings without bath shall not exceed $2 per room per month. The present uniform charge of 40c. per electric light per month with free light on porches shall not be increased. There shall be no charge for domestic water except where the company is obliged to purchase it. In such cases the rate chargeable shall be substantially the same as the cost to the company.

To encourage employees to cultivate flowers and vegetable gardens the company agrees to fence, free of charge, all its house lots. It will continue its practice of removing garbage free of charge. As the need becomes manifest it will continue

its present policy of providing, as rapidly as possible, suitable bathhouses and social centers in the nature of clubhouses for the employees at the several mining camps.

Eight hours will constitute a day's work for all underground employees. This will mean eight hours exclusive of the noon hour and the time required to go and come from the mine opening to the place of employment. Nine hours will constitute a day's work for all outside labor, except that of firemen and engineers.

All employees will be paid semimonthly by check. No deductions will be made from earnings, except where authorized by employees. No change affecting conditions of employment with respect to wages or hours will be made without giving 30 days' notice, as is provided by statute.

The schedule of wages and the working conditions now in force in the several districts will continue without reduction; but if, prior to Jan. 1, 1918, a general increase is granted in competitive districts in which the company does not conduct operations, a proportional increase will be made. For this purpose a joint meeting of the miners' representatives and proper officers of the company will be called, within 30 days after the increase in competitive districts is effective, to discuss and determine a method for fixing the schedule in the new districts affected.

## Outlook in Coal Mining

In our last issue we printed nearly two pages of comments from prominent coal-mining people relative to the prospects for business in the coal industry this fall and winter. Additional opinions are coming in every day, the following being only a few of those received:

### ALABAMA

B. F. Roden, Pres., Roden Coal Co., Marvel — Fairly good. Prices still low, and as bulk of contract business does not expire until next year, the average price for coal will be low this winter.

W. R. Young, Hills Creek Min. Co., West Blockton — Fair. Domestic business good. Steam business dull.

James Gallacher, V. P. & Gen. Mgr., Summit Coal Co., Dora — Good. This is new company just organized to develop 1,000 acres on Black Creek seam.

### CANADA

John S. Barton, Minudie Coal Co., Ltd., River Herbert, N. S. — Very brisk. There is great scarcity of labor.

### COLORADO

G. W. Harris, Pres., Colorado & Utah Coal Co., Denver — Good in the Routt County field.
Juanita C. & C. Co., Bowie — Poor.
J. J. Wolfersperger, M. S., Yampa Valley Coal Co., Pallas — Good.

### ILLINOIS

Carl Scholz, Pres., Rock Island Coal Min. Co., Chicago — Average business this fall and winter. If strike occurs in competitive fields business will be rushing.
West End Coal Co., Springfield — Fairly good.
W. C. Alexander, Pres., The Carterville Herrin Coal Co., Herrin — About normal.
Egyptian Coal & Min. Co., Marissa — Fair.
W. R. Coleman, Clark C. & C. Co., Peoria — Above the average.
Bell & Zoller Coal Co., Chicago — Very good.
F. S. Pfahler, Gen. Supt., Southern Coal, Coke & Min. Co., Belleville — Better than last year.
Bessemer Coal & Min. Co., Tilden — Better.
Carterville & Big Muddy Coal Co., Carterville — Good. Many of the large mines which have been idle in Williamson County are now working full time.
James A. Hall, Trustee, Cantrall Co-Operative Coal Co., Springfield — Good.

### INDIANA

W. M. Ogle, Pres., Vandalia Coal Co., Terre Haute — Materially improved.
John H. Jones, Klondike Coal Co., Oakland City — Good.

### IOWA

J. B. Dudley, Treas., Egypt Coal Co., Mystic — Fair. Prices weak account too much eastern (Ill.-Ky.) coal being dumped on this market.
Phoenix Coal Co., Mystic — Fair. Enough business but prices low. Too much eastern coal.
P. Maring, Pres., Iowa Block Coal Co., Exline — Good.
E. E. Lee, Pres., Peerless Coal Co., Mystic — Normal.
G. Carney, Gen. Mgr., Wright Coal Co., Carney — Good.

### KENTUCKY

Thomas S. Hayman, Gen. Mgr., Elk Horn Min. Corp., Fleming — Fine.
Frank L. Long, M. S., The Royal Collieries Co., Offutt — Good.
J. W. Cockill, Gen. Mgr., Henry Clay C. & C. Co., Lookout — Extra good. Labor and car shortage. All mines arranging to increase output.
R. F. Coke, G. M. Min. Div., Elk Horn Min. Corp., Fleming — Running full time.
Himyar Coal Corp., Domino — Good.
Magnet Coal Co., Four Mile — Good. Car shortage at present.
Banner Fork Coal Co., Wallins Creek — Fair.
W. L. Moss, Moss & Sons Coal Co., Pineville — Fairly good.
David Halley, The Purity Cannel Coal Co., Prestonburg — Good.
R. L. Wheeler, Brush Creek Min. & Mfg. Co., Wheeler — Good.
T. B. Mahan, Mahan-Jellico Coal Co., Packard — Good.
E. W. Holt, The Holt Coal Co., Central City — Normal. Car shortage.

### MISSOURI

W. L. Schmick, Gen. Mgr., Big Muddy C. & I. Co., St. Louis — Fair on domestic coal but poor on industrial coal.

### MONTANA

Walter Scott, Star Coal Co., Musselshell — Above average.

### NEW MEXICO

Thomas H. O'Brien, Gen. Mgr., Stag Canon Fuel Co., Dawson — Fair.
P. A. Allaire, Emerson & Allaire, San Antonio — Good.

### NORTH DAKOTA

J. W. Dering, Mgr. Min. Dept., National Briquetting Co., Kenmare — Exceptionally good.

### OHIO

The Meister Coal Co., Flushing — Moderate.
W. F. Upson, Pres., Upson Coal & Min. Co., Dixie — Good.
F. W. Braggins, Lorain Coal & Dock Co., Columbus — Much better.
Thomas Brettell, Jr., Gen. Mgr., Brettell Bros., Mingo Junction — Good.

### OKLAHOMA

J. G. Puterbaugh, Pres., McAlester Fuel Co., McAlester — About 70 to 75 per cent. of last year.
Wm. A. Evans, Gen. Supt., Rock Island Coal Min. Co., Hartshorne — Good.
Carbon Coal Co., Carbon — Business will depend upon weather. Cold winter, good business.
Okmulgee Coal Co., Okmulgee — Normal. Good outlook.

### PENNSYLVANIA

W. W. Helman, Blain Run Coal Co., Coalport — Much better.
Hebron Robison, Gen. Mgr., West Virginia-Pittsburgh Coal Co., Pittsburgh — Continuous improvement.
W. G. Rogers, Gen. Mgr., Fair View Min. Co., Pittsburgh — Very good. August tonnage greater than June and July combined. September better than August. Good outlook.
J. P. Corcoran, Traders Coal Co., Ridgewood — Brick.
Ellsworth Coal Min. Co., Minersville — Good.

### TEXAS

R. W. Carr, Carr Coal Co., San Antonio — Dull.
J. H. McLure, Gen. Mgr., Strawn Coal Co., Strawn — Good.
Geo. Derby, Gen. Mgr., Santo Tomas Coal Co., Laredo — Good.
Bridgeport Coal Co., Bridgeport — Ordinary. We have fuel oil as competitor.

### UTAH

Central C. & C. Co., Salt Lake City — Good.
J. S. Smith, Sales Mgr. Spring Canyon Coal Co., Salt Lake City — Good.

### VIRGINIA

C. H. Thompson, Gen. Mgr., Darby Coal Min. Co., Darbyville — Above normal.
J. S. Cheyney, Stonega Colliery Co., Glamorgan — Better this fall.
Everett Drennan, V. P. and Gen. Mgr., Stonega Coake & Coal Co., Big Stone Gap — Better than any time this year. All mines working full time. Stimulus due to big demand for coke. Steam and domestic coals quiet.

### WASHINGTON

Pacific Coast Coal Co., Seattle — About same as last year.
B. H. Johnston, Pres., Mendota C. & C. Co., Centralia — Same as last year.

### WEST VIRGINIA

A. J. King, Sunbeam Coal Co., Charleston — Good.
W. N. Page, Pres., Gauley Mountain Coal Co., Ansted — Coal markets and prices unsatisfactory. Coke in good demand and prices improving.
Vulcan Coal Co., Vulcan — Good.
Ben Franklin Coal Co., Mountsville — Good.
Black Betsey Coal Min. Co., Black Betsey — Much better.
Carbon Coal Co., Carbon — Good demand for all grades. Labor shortage.

### WYOMING

Cambria Fuel Co., Cambria — Fair.
Frank A. Manley, V. P. and Gen. Mgr., Union Pacific Coal Co., Rock Springs — Good all over the West.
The Owl Creek Coal Co., Gebo — Business very good.
Peter Kooi, Kooi — Better than usual.

# Editorials

## Coal--Civilization--War

That the actual civilization of today and the continuance of the present war are both dependent to a large extent on the output and use of coal is a fact not generally known or realized and may appear to be an anomaly or an exaggeration. Yet it is neither—no anomaly because it is the result of systematic study and experiment, a form of true evolution; no exaggeration when we take into consideration the vast number of processes using coal or dependent on its products.

Nor is the money value of the coal we produce, to say nothing of its byproducts, a matter of general knowledge. Take the value of raw coal at the mines as it is loaded upon cars. In 1913, for the United States alone, this amounted to $760,488,758. Its potential value is much greater, probably at least twice as much.

When we consider the vast proportion of our coal business, the ignorance of the average man regarding its conditions, activities and nature is astounding. Talk to people, ask them what coal is composed of, how it is mined, what products we obtain from it, the answers to such questions will prove the foregoing statement to be true. Even the daily papers, that could easily obtain accurate data, show a misunderstanding and lack of knowledge on the subject that are both ludicrous and lamentable.

As to the need, the absolute necessity of coal to a continuance of the war now going on, the words of that famous Britisher, David Lloyd George, in a speech made last week at a national conference of coal operators and miners, make a plain and startling summary:

"Coal means life for us and death for our foes. Steam means coal; rifles mean coal; shells are filled with coal—the very explosive inside of them is coal, and coal carries them right on to the battlefield to help our men. Coal is everything to us, and we want more of it to win the victory. Our navy owes its strength to coal. We must have more coal to win."

Even to fight at all, under modern warfare conditions, coal is absolutely necessary.

If all the coal mines in the countries at war were closed, all fuel stocks exhausted (as they very soon would be if the mines did not operate) and no coal could be obtained from neutral countries, the war on land would automatically end, unless the combatants returned to swords, knives, bayonets and clubs. Battleships, cruisers and submarines would be badly crippled, as it would be impossible to get sufficient oil to take the place of coal.

Coal is the prime mover of our civilization; and whether for peace or war, it is the substance that gives to us more useful things, more things vital to our existence, than any other substance. It is the one necessity about which we know so much and yet so little. Formed when there was no sign or footstep of man, its real value has only been discovered in the last few years. Without it our boasted civilization would be as of the Stone Age.

Many people believe that coal furnishes us only light, heat and power, whereas it is from coal that we obtain beautiful dyes, delicate flavors, the fragrance of flowers, the most powerful drugs, the material for modern explosives, antiseptics and disinfectants, roofing material, road, pavement and building materials, oils of various kinds, fertilizers, besides many other substances of great commercial value.

The following verse, published in *Punch*, covers the situation exactly:

"There's hardly a thing that man can name
Of use or beauty in life's small game
But you can extract in alembic or jar
From the 'physical basis' of black coal tar;
Oil and ointment and wax and wine
And the lovely colors called aniline;
You can make anything, from a salve to a star,
If you only know how, from black coal tar."

## Rockefeller in Colorado

The visit of John D. Rockefeller, Jr., to Colorado has had all the good effects prophesied by W. L. Mackenzie King, who, speaking of the future possibilities of a satisfactory settlement, said: "The will and conscience of John D. Rockefeller is more powerful in Colorado at present than any force which could be brought to better conditions." F. P. Walsh's criticism of that forecast now appears only weak and stupid, but men of his cast of mind are not seriously troubled even when they are shown to be ridiculous.

Mr. Rockefeller has vindicated himself and has done a considerable service to democracy by his genial proof that a rich man is in no way different from other men and is capable of enjoying the same pleasures. The wonder is that the public should have found it necessary to doubt it and growled so unpleasantly because for so long he did not take the tiresome journey and long time which were necessary to prove it.

But his trip is in a sense discouraging. Where is our democracy, if the public and some employees are to seethe with discontent and then to be brought back to friendliness by being cozened with a little easy familiarity? Are the slap on the back and a handshake really so potent that they become more effectual than liberality and character? No wonder the labor agitator, who also can dance with the miners' wives and grasp the hardened and begrimed hand of the toiler, has such power.

Surely the long attempts of the Colorado Fuel and Iron Co. to build good homes, maintain a fine hospital, provide excellent schools and secure safety for its employees should not have been overlooked by the public. Surely the work of the Rockefeller Foundation to supply a livelihood for the persons who had vituperated Rockefeller and all his officials should not have been forgotten. But still more surely these excellent qualities of Rockefeller's company and institution should not have been covered with oblivion only to have the trick of acquiring the good-will of the employees and the public

turned by such trifling acts as the visit of that millionaire and a few meals eaten in common. But it is no new thing to see the public stampeded one way or the other by its personal interest in an individual. The people like to erect certain visible impersonations of times and conditions and seek some man to use as a type just as they sculpture a figure of justice and set it symbolically on a court house as a source of inspiration.

It is grossly undemocratic for the public to be so easily appeased by the mere presence of a rich man and yet to be so undemonstrative and even so hostile when that rich man and his associates have proved themselves for so many years the disinterested friends of the miner. We shall only be democrats when we judge a man by his acts and not by his manner. It is to be regretted that Rockefeller was not understood and appreciated till he used those arts which a politician learns and practices with only one-tenth part of the sincerity with which Rockefeller is animated.

But mine managers may well learn a lesson. Justice is excellent, but the quality of being human—humanity—is even better. We cannot get along without the personal element in management. Absenteeism is largely the absence of the human touch and nothing more. It may be apparent even when the management is physically present though spiritually removed. In cities where employer and employee live within a few squares of each other, absenteeism is as glaringly apparent as ever it was in the Colorado camps.

Democracy too often does not reason from analogy. It too frequently depicts individuals who are at a distance as if they were something other than human. But the coal miner must not be blamed for not understanding a millionaire whose father made his money in oil, for others than he show an equal inability to exercise a saving imagination.

Only today there came into the office of *Coal Age* a man whose business for many years has been advertising. He wanted to know who was the author of the "Notes from a Superintendent's Diary," which has been running in these columns and has met with so many favorable comments. "I am sure," said this visitor, "that scholarly fellow never superintended a mine; he has such a broad and human view." Was there ever a more laughable statement?

He was assured that the author of that diary had been a superintendent for several years and even now found in the mines his source of income. And if a man who has graduated from college, has seen something of the world and has had a wide range of reading has evolved from his consciousness such a conception—let it not be termed puerile for fear he may read this editorial—what may be, what even must be expected from men who without his advantages have been taught year after year to believe that Rockefeller is a barrel of oil with a battle-ax in one hand and a club in the other and cursed with a face lean with avariciousness?

Of course not by any means is it true that all the present employees who voted for Rockefeller's new plan were lukewarm or opposed to him through the long period of strife which marked the Colorado strike. In fact, most of the men who continued working during the strike—not, of course, those who have been reëmployed since its conclusion—must have been markedly loyal to and by the company through the murder and arson which the strikers visited so liberally on the faithful. Still, that many of them were won over is suggested by the queer freaks in voting. Rockefeller danced and met his employees in closest union at Cameron. Here 128 voted in favor of the plan and none against. But in Rockvale, Fremont County, where Rockefeller did not go and where therefore he is still an absentee, the vote was 81 in favor of the plan and 156 in opposition to it. The whole vote stands 2,253 ayes and 483 noes.

It is interesting to note that in the mines around Ludlow the voting was most consistently for the Rockefeller-King plan. Either the men there know the facts of that trouble or else the presence of Rockefeller has done much to remove the animus created by the unfortunate event which happened in that unlucky spot.

It is apparent that larger than measures stands the man; stronger often than right doing is the "glad-hand." It would be indeed well if the anthracite operators could only learn that fact. It would help them to receive justice in their relations with the public and in their dealings with their employees, and they would not have the difficulty they now experience in securing amicable adjustments of their coal prices and wages. So far the operators have not recognized their place as industrial leaders or they would not have found their rightful supremacy menaced by those who not only term themselves, but actually are, the leaders of labor.

## The Need for Stern Measures

In one of Gilbert's farces we are gravely assured that the burglar when he isn't burgling is dangling his children on his knee. And Gilbert was probably correct in his appraisal of burglar morals. But despite the virtues of burglars and other bad bold men we cannot afford to let them go free to terrorize society nor can we because of the good that is undoubtedly in them overlook the evil which is equally undoubted.

One questions whether it is well to let bygones be bygones and let the Colorado strikers who burned, shot and terrorized men and women go scot free. If the past were past and past forever we might feel satisfied with such a solution, but what guarantee is there that the offenses, now to be forgiven and forgotten, will not be repeated by these or other men? This last labor struggle is not the only instance in the selfsame state of Colorado.

In Arizona, a state which corners with Colorado and has a governor more criminally lenient than even Governor Ammons ever was, six mine officials have been taken prisoners by the strikers and their sympathizers. A sheriff's posse rescued them and put them in Clifton court house for safety. The strikers, 2,000 in number, have raided the ice and electric plants, taking out non-union men. Their cry is, "Down with the mine manager! Hurrah for Governor Hunt!"

The law has been treated as a weapon to be used or laid aside at the will of governors and prison authorities at the bidding of politics or maudlin sentiment. It has now lost all its strength—no, not all. It still restrains sidewalk expectoration, delayed reporting of tax returns, smoking in forbidden places and other like peccadillos. For crime it has lost much of its value, especially when those who are guilty of it have a long line of noisy and well-distributed supporters to make a lusty protest

# Sociological Department

## Colorado-New Mexico Meet

By Edgar Sherman*

That first-aid work has advanced in the Colorado and New Mexico coal fields was well demonstrated by the eight teams competing for first honors in the Colorado-New Mexico meet which featured Miners' Day at the Trinidad-Las Animas County Fair, Sept. 23.

The maximum score possible was 400 points for the four events, and no team in the competition was penalized as many as 50 points for careless work or failure to apply the proper treatment. Oakview No. 2, of the Oakdale Coal Co., was awarded the cup with a total score of 384, while the Walsen

BOY SCOUTS AS RAILBIRDS AT MEET, SHOWING THEIR INTEREST IN PROCEEDINGS

team of the Colorado Fuel and Iron Co. took second place with a total of only 2 points less.

The teams competing and their final scores were as follows: Oakview No. 2, 384; Walsen, 382; Piedmont, 378; Morley, 373; Grey Creek, 373; Delagua, 371; Ravenwood, 370; Oakview No. 1, 354.

The events were as follows:

One-Man Event—A man has his left foot and ankle crushed by a loaded car and as a result has a severe shock. A large blood vessel on the front of the foot is wounded and bleeds freely. Dress and carry 50 ft. without stretcher.

*Cokedale, Colo.

Full-Team Event—A rock falls on a man, causing a compound fracture of the right thigh at the middle third, a simple fracture of both bones of the left forearm and a compound fracture of the left side of the lower jaw. Dress and carry 100 ft. on a stretcher.

Two-Man Event—A man is rolled by a car, and the fourth, fifth, sixth and seventh ribs on his right side are fractured. He is found with blood flowing from his mouth and suffering from a severe shock. Dress and carry 50 ft.

Full-Team Event—A man has received in a gas explosion second-degree burns on face, scalp, hands and forearms. Dress and carry 100 ft.

The judges in the contest were: Lieutenant J. R. Hall, of the United States Medical Corps of Fort Logan, Colo., Captain H. G. Garwood, Dr. J. W. Ameese, Dr. E. O. Coleman and Dr. R. M. Shea. All the four last-mentioned are of Denver.

While the first-aid meet was the primary feature of Miners' Day there were other contests arranged for the visiting miners and their families, and both the Boy Scouts and Camp Fire Girls of the various camps participated in the celebration.

## Institute Mining Schools

*SYNOPSIS—The anthracite miners are attending night school in great numbers, and classes for women and girls are being held at Nanticoke, Penn.*

The reports of those mining institutes in the anthracite region that are conducting mining schools at night under the direct control of the local public-school boards have just been completed by their respective presidents and secretaries and have been compiled and arranged in a comprehensive report by Charles K. Gleman, chief clerk of the Susquehanna Coal Co., Wilkes-Barre, Penn. This pamphlet is published by those companies that have taken a special interest in this work.

INSTITUTE, SCHOOL, STATE AND COMPANY COMBINE

This is the fifth report since the movement started, though the organizations were for some years in no way aided by the school district or the state. In fact this is the second season during which the schools have been directly controlled by the public-school boards and have enjoyed the immediate coöperation of the State Department of Public Instruction. At the same time the operating coal companies have not made

OAKVIEW NO. 2, WINNERS OF FIRST PRIZE

All Welshmen and proud of it. From left to right: Alec MacBurnie, captain; Eharlyn Richards, D. G. Roberts, A. H. Powell, P. Daley, A. G. Sugg. Seated: W. L. Morgan, superintendent, with cup captured from Walsen team

WALSEN TEAM, WHICH TOOK SECOND PRIZE

This team had won first prize in three previous meets and held cup two years against all comers. From left to right, standing: Robert Bausfield, Joe Wood, B. S. Marble; kneeling: Joe Polaski, Jim Cruso and Lawrence Cruso

the assistance rendered by the commonwealth a reason for withdrawing their help but have continued to extend their moral and financial support. The wisdom of this threefold method of control has been amply proved by the results. With advisory committees representing both the employers and employees coöperating with the public-school authorities the three elements are united and assure the present and future success of the schools.

The needs of the employee and those of the employer are thus combined with the knowledge and experience of the educational experts. The best proof of the success of this combination is that this year 11 of the students passed the state examinations for mine foremen and 44 those for assistant mine foremen. The total number of those studying has also increased greatly.

There were over 2,500 students enrolled in the schools of the Nanticoke Mining Institute, the Shamokin and Mt. Carmel Mining Institute and the Williams Valley Mining Institute in the season which ended this spring, and the aggregate membership of these institutes was 2,296. The following table shows the remarkable growth of the first two institutes and their schools since they were founded in 1910:

| Institute | Nanticoke Mining Institute | | Shamokin and Mt. Carmel Mining Institute | |
|---|---|---|---|---|
| Year | Members | Students | Members | Students |
| 1910-11..... | 500 | 100 | 108 | 25 |
| 1911-12..... | 501 | 128 | 254 | 56 |
| 1912-13..... | 679 | 637 | 571 | 763 |
| 1913-14..... | 821 | 841 | 761 | 1,016 |
| 1914-15..... | 928 | 1,269 | 1,073 | 1,052 |

In addition to this the Williams Valley Institute, which has just completed its second year, had 295 members and 242 students.

### INSTRUCTION ALSO FOR WOMEN IN THEIR WORK

Men are not the only pupils, nor is mining the only study taught. During five months of the last season Mrs. Anna Snyder Lape was employed by the Nanticoke Mining Institute as field secretary for the sewing classes for married women and employed girls. The last month of her time was devoted to a canvass of the houses in the community, and she secured no less than 559 applications from women to attend the night classes in sewing, cooking and English this fall.

These schools conducted by the mining institutes under the direction and authority of the local school boards aided by the State Department of Public Instruction have the hearty cooperation and support of the coal companies whose employees attend them. In the Nanticoke District, the Susquehanna Coal Co., the Delaware, Lackawanna & Western R.R. Co., the Lehigh & Wilkes-Barre Coal Co. and the Alden Coal Co. are their supporters. In the Shamokin and Mt. Carmel District the companies interested are the Susquehanna Coal Co. and the Philadelphia & Reading Coal and Iron Co. The majority of the students at the Williams Valley Institute schools are employees of the Susquehanna Coal Co.

### LOWER COAL FIELD HAS ALSO BUSY SCHOOLROOMS

Similar night schools have been conducted in the boroughs of Plymouth and Shickshinny, but only under the auspices of the local school board. The Panther Valley Mining Institute had a paid-up membership of 770 last year, and held six monthly meetings. The work was divided into districts and these vied with one another in presenting papers. These papers and the discussions arising from them were of much assistance to the membership.

In connection with the institute, night schools were conducted by employees from the engineering department, under the direction of the superintendent of schools, who is also one of the Lehigh Coal and Navigation Co.'s superintendents. The school had a membership of 139 and an average attendance of 81. Two sessions were held weekly, and mining, primary, electrical, English and mechanical subjects were taught by 10 instructors.

This gave an average of one teacher to eight scholars, which is larger than is customary. In a number of instances students have been promoted especially where the graduates have passed their examinations and been certificated as mine foremen. The students have a slight charge to meet for books. The average expense is $2 per pupil.

## San Francisco Meet of National Safety Council

On Sept. 23 and 24, the Third Annual Joint Field Meet of the American Mine Safety Association and the United States Bureau of Mines was held in San Francisco at the International Panama-Pacific Exposition. This year the California Metal Producers' Association coöperated in promoting the meet and in making it a success. A further interesting fact in relation to the management of the contest is the fact that at the last moment the National Safety Council took the place of the American Mine Safety Association which has now been disbanded.

The first prize for mine-rescue work was awarded to the Sunnyside No. 2 team of the Utah Fuel Co., which was recently portrayed in the columns of *Coal Age*. The first-aid contest was won by a metal-mining team—that of the Homestake Mining Co., of Lead, S. D.—which scored 99 points out of a possible 100.

The first-aid contest was particularly keen, there being 9 teams representing 13 states. The Nevada Consolidated Copper Co., of Magill, Nev., was second, with a rating of 98.6 points. The team of the Bunsen Coal Co., of Westville, Ill., took third place, receiving 96 points.

The teams were awarded their prizes with appropriate ceremony in Festival Hall. H. M. Wilson, formerly secretary-treasurer of the Mine Safety Association and former engineer in charge of the Bureau of Mines at Pittsburgh, Penn., presented the Homestake team with cups and medals. The Utah Fuel Co. rescue crew was presented with its award by L. R. Palmer.

The Utah Fuel Co. rescue crew consists of M. H. Detweiler, captain; Zeph Thomas, T. J. Johnson, George Clark, J. W. Littlejohn and George Usher. The Homestake Mining Co. first-aid team is composed of C. L. Ayres, captain; James Letcher, A. E. Aladalo, M. Ellis, B. Hardwick, J. Peters, William Yaeger and F. E. Clough, manager.

## Sociological Notes

**The Annual Sociological Conference** of the Colorado Fuel and Iron Co. camps was held in Trinidad, Colo., on Oct. 15 and 16. Many leading educators of Colorado were in attendance. A morning session was held at Sopris, Colo., where the school and community houses were inspected.

**The Fourth Annual Mine Safety Demonstration** of the Ellsworth Collieries Co. was held at Ellsworth on Oct. 12. School inspection, folk dancing, lunch provided by the domestic science class, band concerts, first-aid and mine-safety demonstrations were the leading events. Mine No. 1 at Ellsworth, Penn., was winner with 1457 points, mine No. 2 receiving 1,404 and No. 3, at Cokeburg, Penn., 1,408.

**The Philadelphia & Reading Coal and Iron Co.** has published its official record of the Lakeside meet. It shows that Brookside received 99, Pine Knot, 98; Wadesville, 97; Suffolk, inside, 96; Draper, outside, 95; West Shenandoah, outside, 91; Alaska, 90; Mahanoy City, inside, 89; North Franklin, 87, and Bast, outside, 85.

**The West Virginia-Pittsburgh Coal Co.** entertained its employees in the company hall at Colliers, W. Va., recently. Music was rendered by the Locust Grove Band, and refreshments were served to all present. Prizes were awarded by G. A. Wright to those who had the best gardens. Fred Rocchio received the first prize of $25, Dominic Crossio received the second, $15, and Louise Corrodo the third, $10. The fourth prize of $10 went to Marconi and Gobbi, and $5 each was awarded to P. Bonazzi, J. Rometti and J. Tobler. W. S. Owings and G. A. Wright, retired farmers, were the judges, the former presiding over the meeting.

**Night Schools for Miners** have been started, in some cases by operators, in others by the Young Men's Christian Association or the local public-school boards at Nanticoke, Glen Lyon, Wanamie, Alden, Mt. Carmel, West Coal, East Coal, Brady, Sagan, Kulpont, Exchange, Shickshinny, Nesquehoning, Plymouth, Wiconisco, Lykens, Shamokin, Ellsworth, Centralia, Lost Creek, Mahanoy City, Shenandoah, Minersville, Pottsville, Hazleton, Wilkes-Barre and Scranton, all in the State of Pennsylvania. In all these the operators take an active interest. In some cases the whole cost is provided by the operators but in other instances only a part is thus furnished.

# Discussion by Readers

## Efficient Mine Foremen

*Letter No. 7*—I have read with avidity the discussion of "Efficient Mine Foremen," and would like to give a picture that some may consider more or less ideal, but is nevertheless my conception of what constitutes an efficient mine foreman.

First, as to his character: He must have the right personality; he must be a humanitarian and not a misanthrope. His love of humanity will teach him that all men are fundamentally equal and as a result he will treat them with due respect and courtesy. His integrity is above reproach, making him immune to the many petty and larger briberies that come to the mine foreman by virtue of his official capacity. He is just, treating all his workmen with strict impartiality. His standing in the community is that of a man of honor and of clean and sober habits. While he may be strong-minded and have positive views, he is not bull-headed, but open to suggestions, whether these come from the general manager or from a modest trapper boy. His wise administration will gain for him both the high appreciation of those who are his superiors in office and the absolute confidence and respect of his men.

Second, as to his capability and fitness for the office he holds: He is thorough and uptodate, theoretically and practically—a careful student and close observer of every detail. The safety-first idea is not, to him, an abstract notion with which he is expected to keep pace; instead, to him it is an important fact that vitally affects all who work in and around the mine. His constant endeavor is to teach men to be watchful as a means of avoiding possible accidents. When these occur, however, he is prepared to care for the injured and render every possible aid.

Third, as to his knowledge and experience in mining: He is thoroughly acquainted both with the mine in his charge and the system of mining employed. His knowledge of conditions throughout the mine enables him to get the best results in the ventilation of the workings and the timbering and drainage of the mine. He is a firm believer in good haulage roads as being essential to maintaining a uniformly large output of coal. He insists on the humane treatment of the mine mules. Every class of mine machinery and equipment receives his careful attention, realizing, as he does, that a regular daily tonnage depends on its constant operation. He is a strong economist, guided and controlled by a practical judgment. All reclaimed material is stored at a central point in the mine, from which it is distributed as occasion demands. This supply is exhausted before he will permit new material to be ordered or sent into the mine. He studies carefully trade-union agreements, knowing that a superficial knowledge or an inaccurate interpretation of their meaning is the cause of a majority of organized-labor troubles. The knowledge so required enables him to deal justly with his men and expect from them a fair return.

Fourth, as to the results of his management: The number of accidents occurring in the mine is reduced to a minimum, because the men coöperate with such a foreman in his safety-first campaign. They come to realize that their physical well-being is of more value to them than any award under compensation laws or relief plans. The quality of the coal mined is improved, because he has made the men to understand that the marketing of the coal and the continuous operation of the mine depend on their sending good, clean coal to the surface and that in doing this they avoid the danger of being fined, docked or discharged. The result is a maximum output of coal at a minimum cost of production. The efficiency of the foreman and the coöperation of the men produce these much-to-be-desired results. There is thus established a feeling of mutual confidence between the foreman and his men, and as an outgrowth of this condition in the mine, there is formed a closer affiliation through the agency of social clubs, educational classes, entertainments and sports, all of which enable foreman and men to meet on a fraternal basis as citizens and coworkers in a prosperous and contented community.

With this picture before us, I would ask, Does efficiency pay?

WM. JARDINE.
Section Boss, Bunsen Coal Co.
Universal, Ind.

## Explosibility of Coal Dust

*Letter No. 2*—The following remarks that appeared in the editorial in *Coal Age*, Aug. 21, p. 303, entitled "Explosibility of Coal Dust," appeal to me as worthy of careful analysis on the part of all investigators of the dust-explosion problem:

> Until more is known and until the value of the tests of inflammation as a true index of explosibility is proved, it is best perhaps to sit on the fence and declare that we do not know why one dust explodes with ease and violence and another dust with difficulty and without energy.

It is obvious to all that the uncertainty to which this remark refers must be removed if possible, because the complete understanding of why one dust explodes with ease and violence while another is difficult of explosion and develops little or no energy is a fundamental necessity in the solution of the explosion problem and the adoption of means for protection against such an occurrence.

In our investigations, thus far, we have learned that the magnitude of explosive power of a combustible gas depends upon the amount of air with which it is mixed. Different gases require different proportions of air to develop the maximum explosive energy. We have learned that, likewise, the complete combustion of different kinds of coal involves a different weight of air for the same weight of coal consumed, and even when burning different grades of the same coal it is necessary to regulate the air supply to suit the requirements of each grade in order to get the best results.

It is logical, therefore, to conclude that every variety of combustible dust requires its own specific admixture of air in order to develop its maximum explosive force. This fact alone explains why one dust is easily exploded and develops great violence, while another explodes with difficulty and little energy. It is important to distinguish, in this connection, between the inflammation and the explosion of gases, in order to appreciate fully the influence of air supply. While the inflammation of a gas may take place under a variety of conditions or mixtures, perfect combustion resulting in a maximum of explosive energy only obtains with an exact proportionment of air and gas. The editorial states further as follows:

> All we do know is that it is almost impossible to explode under working conditions a mineralized carbon dust like anthracite.

This knowledge is comforting, but undoubtedly there would be a feeling of greater security if the true reason were known why the explosive combustion of anthracite dust is impossible under the conditions prevailing in the mines. While the test made on anthracite dust in the experimental mine at Bruceton developed no explosion, similar experiments made in England on anthracite dust from the mines in Wales produced explosive combustion of the dust. The suggestion that the anthracite dust of Wales contained a slightly greater volatile content than the dust of Pennsylvania anthracite is merely a guess in the attempt to explain the difference in the results of these experiments.

The English experiments were not made under the same conditions as those in the United States, which renders it impossible to form an accurate conclusion without knowing the influence of these differing conditions. It would have been interesting if the two governments had exchanged dust and had performed experiments, each under their own conditions, on the other's dust. This exchange would have served to render the experiments comparable. Had the Welsh dust then exploded in the Bruceton mine, and the dust from this country failed to explode under the English conditions of experiment, we might rightly conclude that the difference was owing to the greater volatile content of the dust.

On the other hand, if our experimenters should fail to produce explosion of the Welsh dust, while the dust from this country exploded in the English mine, it would be conclusive proof that the difference in the results of the experiments was not due to the constitution of the dust of the coal, but to the difference in the conditions under which the experiments were performed. Further tests would then be necessary in order to reveal the true reason for explosive combustion.

I feel that little has been done at any of the experimental stations to establish the exact influence of the air factor in dust explosions in mines. On June 11, 1914, a test was made in the Bruceton mine, on the occasion of the visit of the Mine Inspectors' Institute, U. S. A., to that mine. A description of this experiment will be found in *Coal Age,* Vol. 6, p. 65. This description was prepared by Chief Engineer Rice and Assistant Engineer Jones, of the Bureau of Mines, who state that the air current traveling in the mine just prior to and at the moment of explosion had a velocity of 850 ft. per min. In this experiment one entry was made the intake and the other the return, and the igniting shot was placed in an offset at the center of the last crosscut between the two entries, so as to produce an equal effect on both entries. To further duplicate the conditions on the intake and return, each entry was loaded with the same weight of coal dust, similarly placed. Thus the conditions were identical in each of these entries, except for the direction of the air current, which was intake on one and return on the other entry.

In order to correctly interpret the results of this experiment, it will be necessary to consider the relative effect of the igniting shot and the initial blast on the intake and return currents respectively. For example, the air in the crosscut, on the intake side of the shot, was traveling with a velocity of approximately 14 ft. per sec. toward the shot, while that on the return side was traveling with the same velocity away from the shot. As a result, the initial blast causing the ignition of the dust in the vicinity produced an easy acceleration of the current on the return side of the shot, while on the intake side it set up a conflict of forces. In the return the air and dust were forced steadily ahead and away from the flame, while on the intake side the conflict of forces resulted in the thorough mixture of the air and dust, in close contact with the flame. Thus, on the return side, the conditions were unfavorable to the quick development of explosive combustion, but on the intake side they were favorable to the same.

The results of the test showed that the average velocity of flame between stations on the return was 182 ft. per sec., while that on the intake was only 131 ft. per sec. At a station on the return air course 150 ft. distant from the shot, a pressure of 1.4 lb. was registered by a recording gage, while at a station located at the same distance from the shot on the intake side a pressure of 2.4 lb. was registered. On the return air course, 550 ft. from the shot, the pressure had fallen to 1 lb., while at the same distance from the shot on the intake it had risen to 5 lb.

The conclusions drawn by the bureau engineers from the observed facts are stated, in the article to which I have referred, as follows:

> It would not appear from the pressure and velocity records that the high velocity of the air current had much influence on the development of the explosion. About the only variation in the action of the explosion in the two entries was that the velocity of flame on the return side was somewhat greater than that on the intake side. While this may have been an effect of the ventilating conditions, it was probably more a matter of chance than an effect of the air current, since the explosion was so slow.

No explanation is given for the conclusion that the slower advance of the explosion on the intake side should make the slower flame velocity on that side "a matter of chance," or why the fact that flame travels faster with the draft or in the direction of least resistance should have no application in this case.

It is freely admitted that conclusive proof in regard to the effect of an air current of high velocity on the development of a dust explosion cannot be established by a single test. Assuming that these results were not "a matter of chance" and without other evidence than that of this test, all that can be said regarding the possible effect of the high velocity of the air is that the initially low and decreasing pressure on the return indicates that the air moving away from the shot at a velocity of 14 ft. per sec. apparently prevented the early

development of explosive combustion on the return, while the initially higher and increasing pressure observed on the intake indicates that the air moving toward the shot at a velocity of 14 ft. per sec. apparently promoted the earlier development of explosive combustion on the intake.

The bureau engineers state that "the pressure, as recorded by the different manometers, showed that the explosion was light, partly due to the dust being mixed, and perhaps also due to the wet condition of the mine." Another deterrent feature in this respect might have been mentioned as follows: The prevailing air conditions, notwithstanding the fairly high velocity of the air current, were probably not favorable to the development of violent explosive effects in the mine. My reasons for this conclusion have been stated in previous letters to *Coal Age*, Vol. 6, pp. 518 and 761, and need not be repeated here, since they could not be applied in the interpretation of the results of this test as the engineers have not given the barometric pressure and the temperatures in the mine and outside at the time of making the test.

Further, experience has proved that at the season of the year when this test was made (June) mines are practically immune from dust explosions. I know it will be claimed that the presence of an increased amount of moisture in the mine in the summer season accounts for this immunity, and no doubt it does in part. However, proof has been steadily accumulating that the presence of moisture is not the sole and probably not even the principal cause of the absence of these explosions during warm weather, but that air conditions more likely determine the results.

Considerable progress in the solution of the problem would be possible if another experiment were to be made in the Bruceton mine next winter, at a time when the outside temperature is below the freezing point. This test should be made under identically the same conditions as the test in June to which I have referred. I think it is a safe prediction that such a test would not only bring out the dominant influence of the air factor, but would also show that the editor's conclusion, *Coal Age*, Aug. 21, p. 303, that "though moisture is probably a protection it is not an unquestionable guarantee of safety," is based on the truth.

JOHN VERNER,
Former State Mine Inspector.

Chariton, Iowa.

## Compensation in Relation to Constitutional Rights

*Letter No. 2*—I was much interested in the article of Sim. C. Reynolds, *Coal Age*, Sept. 25, p. 515, on the relation of the Workmen's Compensation Act to their constitutional rights. Mr. Reynolds' letter seems to draw an analogy between the curtailment of a constitutional right and an unconstitutional wrong. It is immaterial that the constitutionality of the one is political and the unconstitutionality of the other physical and moral. The former is governed by the exercise of an arbitrary power, while the latter can be controlled only by the force of moral suasion.

Speaking of the "quiet acceptance" of the compensation act by mining men, Mr. Reynolds states that it "indicates a satisfaction in the accomplishment at last of a duty long deferred by the state." He assigns no reason, however, why this duty has been so long deferred and the act passed by the Assembly at its recent session. In my previous letter I endeavored to ascribe a reason for the nonpassage of this act, and though my explanation may appear to reflect a prejudiced opinion, I am convinced that it is worthy of consideration. I believe that the true reason why such an act has not been passed before is that it has not suited the ideas of employers of labor. No measure that is intended to materially benefit the laboring man will meet with the approval and sanction of his employer unless such benefit can be conferred without jeopardizing or inconveniencing the interests of the latter.

My letter was designed to call particular attention to sec. 302 of the compensation act, in which it is made optional with the employer and employee to accept or reject the provisions of the act. I feel sure that the general opinion would be that an employer would be more willing to avail himself of this proviso than an employee. This conclusion is warranted by the proviso in the act, which states: "It shall not be lawful for any officer or agent of this Commonwealth . . . to give such notice of rejection of the provisions of this article to any employee of the state," etc. The act is thus made compulsory for the state, but not for the individual or corporate body. There may be good and sufficient reason for this provision of the act which it is unnecessary to consider in this connection.

When an employee does not accept the provisions of art. 3 of the compensation act, it is true he is not deprived of his constitutional right to secure redress for injury through a process of common law; but this, as Mr. Reynolds has very empathically pointed out, is uncertain at the best. Thus, it is clear that the administration of the act becomes a potent force in opposition to a process of common law seeking redress for injury to an employee.

Mr. Reynolds presents a very plausible argument on the relative value to an employee of the free exercise of his constitutional right and the material compensation under the operation of the act. He has evidently assumed that my reference to the waiver of his constitutional rights, on the part of an employee, was of greater intrinsic value to him than the material benefit to be derived through the compensation provided under the act. I heartily agree with Mr. Reynolds that such is not the case and wish to say that it was not intended to be implied in my previous letter. I cannot, however, so heartily concur with him in his eulogy of compensation laws in general and the operation of such a law in Pennsylvania in particular, especially when its enforcement is based on such radical changes as have been required in the mining law, in order to bring mine employees under the operation of the act.

I do not want to be classed as one resting in complacent satisfaction that the actual test of this law will prove its adequacy. I believe it is fraught with conditions inimical to the desired good. One feature of the situation that supports this conclusion is that in order to make the compensation act acceptable to the coal operators it was necessary for the state to surrender all rights of supervision and control in the operation of the mines. This concession places the operation of coal mining out

side of state supervision and makes it a law unto itself, which will be inevitably the expression of a single party only to the matters in controversy. I want to ask, Is not this pure class legislation?

For the purpose of argument let us assume that every coal-mining operation in the state elects to come under the provisions of this act. Having paid to the State Workmen's Insurance Fund the necessary premiums to insure themselves against liability for accident to their employees, the companies are free to operate their mines without respect to the provisions of any previously existing mine laws. As a result the safeguards thrown around the coal miner are destroyed by the practical annihilation of many of the provisions of the mine law. Evidence of this fact is to be found in the amendments Nos. 329 and 330 by reason of which the statutes thus amended become practically inoperative.

The reading of these amendments drives one to the conclusion that the preservation of life and prevention of injury to employees in the discharge of their duties in the mine are made matters of secondary consideration. By the payment of a stipulated premium, the operator is made secure against loss for accident or injury to employees while at work. I would ask, Why should an operator incur additional expense to protect his employees from injury when he has already paid for any damages that may arise therefrom? It is useless to urge the plea of humanity, in reply. I believe it is Blackstone who remarked, "Corporations have no souls," and it is impossible to convict or convince them on the principles of humanity.

In closing, I want to repeat a statement made in a prominent daily publication of this state to the effect: "The father of a large family applied for work at his usual vocation and was refused on the ground that he was a poor risk under the proposed compensation act." Is it not true that employers will select only the best possible risks consistent with the work to be performed? Many a laborer who is well-adapted by a lifetime of service in the mines will thus be deprived of his God-given right to earn the reward for his labor. As a miner I daily face the dangers of a miner's life. I am not an opponent of compensation, but would strongly advocate a law that would distribute the burden of each individual on the shoulders of all who profit or benefit by his toil. Wage earners are an absolute necessity to the welfare of the entire community, and compensation for injury or death in the performance of their duties is rightly the burden of the community whom they serve and of which they are a part.

A. M. INER.

——, Penn.

# Study Course in Coal Mining

BY J. T. BEARD

## The Coal Age Pocket Book

**Use of Logarithms**—By the use of logarithms the processes of multiplication, division, involution and evolution are greatly shortened and simplified. The two latter processes are in fact a repetition of the two former; while division and evolution are the reverse operations of multiplication and involution, respectively.

It is important to observe that the use of logarithms enables the finding of decimal powers and decimal roots of numbers, which is impossible by other means. When a decimal index of a power or root of a number can be expressed as a fraction the numerator and denominator of such fraction express respectively the indices of the power and root or the root and power, as the case may be. The decimal index, therefore, expresses in one operation the extraction of any given root of any given power of a number, which will be better understood later.

The application of this principle is shown in numerous instances where quantities vary in their relation to each other according to different powers. For example, in fan ventilation, the fourth power of the speed ($n^4$) of the fan varies as the fifth power of the quantity ($q^5$) of air in circulation; which is expressed as follows:

| | | | |
|---|---|---|---|
| | $n^4$ | *varies as* | $q^5$ |
| or | $n$ | *varies as* | $q^{\frac{5}{4}}$; or $q^{1.25}$ |
| and | $q$ | *varies as* | $n^{\frac{4}{5}}$; or $n^{0.8}$ |

The expression $n^{\frac{4}{5}}$ or the four-fifths power of n is identical with $\sqrt[5]{n^4}$ or the fifth root of the fourth power of n. Hence, to extract the root of a power, divide the exponent of the power by the index of the desired root and the quotient will be the new exponent, which combines the two operations in a single transaction.

**Rules for the Use of Logarithms**—The following four simple rules cover all the operations of logarithms:

**1. Multiplication:** To find the product of two or more numbers, add their logarithms; the number corresponding to this logarithmic sum is the desired product.

In other words, the logarithm of the product of two or more numbers is equal to the sum of the logarithms of the numbers.

**2. Division:** To divide one number by another, subtract the logarithm of the divisor from that of the dividend; the number corresponding to this logarithmic remainder is the required quotient.

In other words, the logarithm of the quotient is equal to the logarithm of the dividend minus that of the divisor.

**3. Involution:** To find any given power of a number, multiply the logarithm of the number by the exponent of the power; the number corresponding to the resulting logarithm is the required power of the given number.

**4. Evolution:** To find any given root of a number, divide the logarithm of the number by the index of the root; the number corresponding to the resulting logarithm is the required root of the given number.

## The Coal Age Pocket Book

**Arithmetical Complement**—The arithmetical complement of a logarithm is the remainder found by subtracting the log from 10; the logarithm of 3 is 0.47712, and its arithmetical complement is, therefore, 10 — 0.47712 = 9.52288. Its use involves subtracting from the final result as many tens as have thus entered the solution. The antilog is more convenient for use.

**The Antilog**—The solution of problems frequently involves the multiplication and division of many quantities. In the use of logarithms, the sum of the logs of the divisors would be subtracted from the sum of the logs of the multipliers, to obtain the log of the final result. By the use of what is called the "antilog" of each divisor, it is possible to complete such a solution in a single operation, by adding together the logs of the multipliers and the antilogs of the divisors.

The **antilog** of a number is obtained as follows: Subtract the mantissa of its log from 1, for the mantissa of the antilog. Then, add 1 to the characteristic of the log and change its sign, the addition being always algebraic. The following examples will make the process understood:

**1.** To find the antilog of 800: Log 800 = 2.90309
Mantissa of antilog, 1 — 0.90309 = 0.09691
Characteristic of antilog, 2 + 1 = 3; and changing sign = — 3
Hence ..... Antilog 800 = $\bar{3}$.09691

**2.** To find the antilog of 2: Log 2 = 0.30103
Mantissa of antilog, 1 — 0.30103 = 0.69897
Characteristic of antilog, 0 + 1 = 1; giving — 1
Hence ..... Antilog 2 = $\bar{1}$.69897

**3.** To find the antilog of 0.4: Log 0.4 = $\bar{1}$.60206
Mantissa of antilog, 1 — 0.60206 = 0.39794
Characteristic of antilog, — 1 + 1 = 0 (zero has no sign)
Hence ..... Antilog 0.4 = 0.39794

**4.** To find the antilog of 0.00125: Log 0.00125 = $\bar{3}$.09691
Mantissa of antilog, 1 — 0.09691 = 0.90309
Characteristic of antilog, — 3 + 1 = —2; giving + 2
Hence ..... Antilog 0.00125 = 2.90309

**Note**—The use of the antilog accomplishes the same purpose as the arithmetical complement and requires no correction of the final result as explained in reference to the latter. It should be observed that the antilog of a number is always the log of the reciprocal of that number. Thus,

*Log* 800 = *antilog* 1/800 or 0.00125

As shown above, log 800 = 2.90309; antilog 0.00125 = 2.90309.

**Example**—Solve the following by the use of logarithms:

$$p = \frac{ksq^2}{a^3} = \frac{0.00000002 \times 40{,}000 \times 50{,}000^2}{50^3} = ?$$

**Solution**—
log 0.00000002 ..... $\bar{8}$.30103
log 40,000 ..... 4.60206
log $50{,}000^2$ (4.69897 × 2) ..... 9.39794
antilog $50^3$ (log $50^3$ = 1.69897 × 3 = 5.09691) .. $\bar{6}$.90309
Log p ..... 1.20412

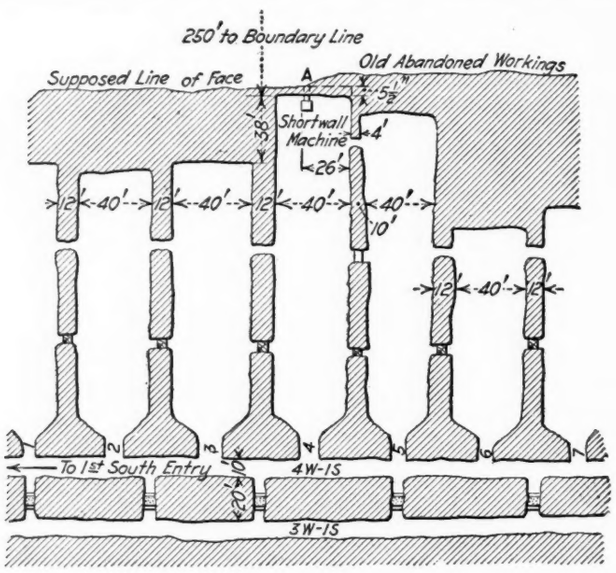
Hence p = 16 lb. per sq.ft.

# Inquiries of General Interest

## A Flooded-Mine Proposition

I would like to present for such advice as may be obtained through *Coal Age* and its readers an interesting and difficult proposition, which we have been up against recently in the operation of our mines. It is as follows:

Some time ago one of our shortwall mining machines cut through the breast of a room into an old abandoned mine, which was entirely filled with water. The machine was working at the time in No. 4 room of the fourth west off the first south entry. As shown in the accompanying sketch, the cut was started at the right rib in the face of the room and had proceeded 26 ft. across the breast when the water suddenly broke through into the room. As the coal dips toward the face, it was not




PLAN OF ROOMS, SHOWING WHERE MACHINE CUT THROUGH INTO ABANDONED MINE

15 min. from the time the machine cut through until the water flowing in from the old workings had entirely filled the room to within 18 in. of the roof, and flowing through the last breakthrough between rooms 3 and 4, the water reached the lower portion of the south entries, which are not shown in this sketch.

So rapid had been the inflow of water that the machine men were unable to withdraw the machine from the undercut, where it still remains, and everybody left the mine. In company with the mine boss, however, I immediately went into the mine and ascertained that there was a very large stream of water flowing through the break and that it would soon flood the entire mine. We at once set to work and built a concrete bulkhead across the two south entries, and by this means we were able to hold back the water and prevent its reaching other portions of the mine. At the same time we ordered pumps sent by express, and these were installed and put in operation in time to prevent further inundation.

The equipment installed consisted of two two-stage 5-in. centrifugal pumps and two 5-in. plunger pumps. These four pumps proved to be able to handle the water, and later it was found that they were gaining on the inflow. The water was gradually reduced in volume so that it was possible to continue operating the mine every day. Investigation showed that the inflow was largely reduced by reason of the heaving of the bottom, which partly closed the opening made by the machine. Owing, however, to the water having cut out some of the bottom coal, the flow still ranged from 700 to 800 gal. per min.

I would like to ask *Coal Age* and its readers what is the best method to pursue in this case, in the erection of a permanent stopping across the face of the room that will be sufficiently strong to withstand the pressure of the water so that there will be no fear of further trouble in the future. Will it be possible or practicable to wall off the coal face in No. 4 room and those adjoining it, in such a manner as to make the place secure? What should be the thickness of such a concrete wall, and how should it be constructed? I would greatly appreciate any practical suggestions that will assist us.

WILLIAM W. MILLER, General Manager,
Pittsburgh Mining Co.

Pomeroy, Ohio.

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The proposition presented by correspondent is one that will interest a large number of *Coal Age* readers, who are invited to give their suggestions and to state what in their opinion is the best method to pursue. Unfortunately, correspondent has omitted to give several important data that are absolutely required before an intelligent answer can be given to his question.

It may be assumed, however, that the water is flowing into the mine under a head of, say, 100 ft., the present rate being 700 or 800 gal. per min. The mine is a drift opening in a generally flat formation, the coal being the No. 8 seam in Ohio, which is 4½ ft. thick in this mine.

In answer to the request of correspondent, let there be many suggestions by readers in regard to the most practicable means to be adopted in this case, in order to insure the future safe operation of the mine. To start the discussion, *Coal Age* would suggest the feasibility of sinking drillholes at the faces of rooms 3, 4 and 5 of a size—say 4 or 6 in. in diameter—to enable good cement grouting to be run into the mine.

This suggestion assumes that the pumps installed are capable of draining these rooms and controlling the inflow of water sufficiently to enable the erection of a strong timber bulkhead, say 3 or 4 yd. back from the face of the coal, so as to confine the grouting run in through the drillholes, in the space between the bulkhead and the face of the coal. In order to form a water-tight joint at the floor and roof of the seam, shallow trenches or troughs should be dug in the floor and the roof the entire length of and within the bulkhead, the purpose being to prevent an even joint.

# Examination Questions

## Alabama Fireboss Examination, Held July 26-29, 1915

*Selected Questions*

*Ques.*—What dangers may arise from improperly putting together a safety lamp?

*Ans.*—When a safety lamp is not properly assembled, either from some of the parts being omitted or not fitted accurately together in their right place and made secure, there is danger that the flame of the lamp or the flame of the gas burning within the lamp may pass through the small apertures furnished by the improperly fitting parts and ignite the gas outside of the lamp. In order to provide the desired security, all openings to the lamp must be protected by standard wire gauze, which under normal working conditions prevents the passage of flame from within to the outside atmosphere. When a lamp is improperly put together, there is danger of the parts working loose, and the improper assembling of the parts may also invite an incautious miner to tamper with the lamp in an attempt to improve its condition.

*Ques.*—Is it possible to have an explosion in a mine when the lamp gives no indication of the presence of firedamp?

*Ans.*—Yes. A blownout or a windy shot may result in a dust explosion under conditions that make this possible where the coal is soft and inflammable and fine dust and slack have been permitted to accumulate at the working face. It has been amply proved that the fine dust of an inflammable coal is capable of explosion, in the entire absence of combustible gas. Instances are on record where ignition of gas and dust has taken place and explosion followed as a result of a heavy fall of roof, in a particular rock formation capable of striking sparks. Such was the case in the Bellevue mine explosion, Dec. 9, 1910, at Alberta, Canada, as described in *Coal Age*, Vol. 3, p. 985.

In the mining of a highly inflammable coal a combined explosion of dust and gas is possible when the percentage of gas present in the air is much below what is indicated by the ordinary Davy lamp or what is commonly observed in the examination of a mine for gas by the fireboss.

*Ques.*—What dangers may arise from the improper care and handling of safety lamps by workmen?

*Ans.*—Owing to improper care on the part of the workman, a safety lamp may become clogged with dust and oil so as to be dangerous for use. Or the lamp may be placed in such a position as to become injured by falling slate or coal, or by an accidental blow of a pick or other tool, or it may fall from its position and be overturned. In any such case there is danger of the lamp passing flame, either by being injured or by reason of its fall, or by the flame impinging against the gauze of the lamp and heating it to redness should the lamp be overturned by accident.

There is also danger of a safety lamp passing flame when it is improperly handled. For example, the lamp may be swung to and fro when being carried, or it may be exposed to a strong air current or carried too rapidly against the air current passing in an entry, or it may be exposed for too long a time to gas, or the gauze may become heated by the lamp being held in an inclined position or by reason of too large a flame in the lamp. In any of these cases the lamp is unsafe.

*Ques.*—What are the dangers arising from the use of powder in dry and dusty mines?

*Ans.*—The use of powder in dry and dusty mines is always attended with more or less danger from the possible occurrence of a windy or blownout shot, as the result of overcharging the hole, or insufficient tamping, or the improper placing of the hole, the charge being laid too deeply on the solid, or the coal not being properly mined or sidecut, or the presence of fissures or crevices in the coal, or the shot blowing through into adjoining rooms or workings. There is also danger from the use of too quick a powder for the coal being mined, or the firing of two or more shots at the same time in the same working place, or mixing different grades of powder in blasting. It is important to permit no accumulations of fine dust and slack at the face when blasting, and only permissible powders should be used in such mines.

*Ques.*—In an airway 8 ft. wide and 6 ft. high, the air has a velocity of 420 ft. per min.; what is the volume of air passing per minute?

*Ans.*—The area of this airway is $8 \times 6 = 48$ sq.ft. Then, assuming that the velocity given is an average velocity for the entire area of the airway, the volume of air in circulation is $420 \times 48 = 20{,}160$ cu.ft. per min.

*Ques.*—If certain working places in a mine generated gas frequently and other working places gave off little gas, which would you examine first in making your rounds in the morning, and for what reason?

*Ans.*—This question cannot be intelligently answered without further information. If the mine is properly ventilated, it may be assumed that the section of the mine generating gas frequently, has its own separate air split and that the return from this section is not permitted to pass through the other portions of the mine, but enters at once into the main-return airway. In such a case it would be natural for the fireboss to proceed first to examine the gaseous section, for the reason that if gas has accumulated in that section, steps should at once be taken for its removal, and there would be less danger of an accident during the examination of the other portions of the mine.

Assuming, again, that the places frequently generating gas are distributed in different portions of the mine, it would not be possible to examine these places, except in their regular order. The fireboss making the morning examination of the mine, having examined the ventilating apparatus to see that it is working properly, proceeds at once to the bottom of the intake or downcast shaft and follows the intake air in its course throughout the mine, examining each place in regular turn.

# Book Reviews

## An Encyclopedia of Mining

LIBRARY OF COAL MINING AND ENGINEERING. 8 vol., comprising 3026 pp., including introductions and indexes. 5½x8½ in. Well illustrated. McGraw-Hill Book Co., Inc., 239 West 39th St., New York City. Price $16, cloth boards.

This handy grouping of interesting information bearing on coal-mining plant operation will be of interest to every mining man. In most cases the volumes thus assembled have not been specially written for his reading. Nevertheless, they appear to fit in admirably with the needs of the engineer and manager, though in places they contain some material not altogether germane to coal mining and they omit entirely some subjects which from time immemorial have been considered as having a paramount interest to mine officials.

From the earliest days we have taken geology as the fundamental study of mining and harrowed our minds with all the freakish developments of a planet out of gear. But it is refreshing to see a book which realizes that the mine is a machine shop and not a classroom for field geology. The books mark an era—the passing of the mining man who regarded himself as a brother to the civil engineer and his replacement by one who looks at coal mining largely as a mechanical problem.

### CHIEF STUDY IN MINING IS MACHINE OPERATION

In fact it is time for mine managers to put aside the misconceptions fostered by early association and training and to treat the mining problem as a study of mining and not of coal hunting, surveying and mine gases, though these subjects have their value. But there is nothing so likely to keep us back in development as to have too large a stress laid in our training on the less essential elements.

In many mines, blest with a reasonably level bed and coal of even thickness, the problems of haulage and of cutting are of paramount concern and the emphasis given them in this library is well justified. However, it must be conceded that these books should be supplemented by some chapters on mine gases, ventilating methods, mine projection, safety lamps, oil and electric, and a more extended reference to rope haulage than is included in these volumes. Mine cars, hoisting devices, cages, self-dumping devices also are allowed to pass without recognition. But to make up for these deficiencies the books are in some places remarkably strong.

Hubert E. Collins' "Erecting Work" is particularly desirable for a mining engineer. He has often found himself at his wits' end to meet difficulties in erecting, and usually, be it said, some working man, with just plain brains and no training in the university, has had to take the work off his hands and complete it. The engineer will be interested in chapters on "Knots and Hitches," "Runways on an Incline," "Work for a Gin Pole," "Rigging for the Receiver," "Moving a Cylinder," "Unloading a Heavy Shaft," "Rigging for a Heavy Lift," and "Some of the Lighter Work in Erecting."

The "Electrical Catechism," by George D. Shepardson, professor of electrical engineering in the University of Minnesota, covers in 400 pages the whole subject of electricity in its more elementary phases and in a most practical manner. Most electrical books carefully and skillfully disguise the facts; this volume makes them plain.

### NO QUAINT IRRELEVANCES ABOUT THE PAST

It is Hubert E. Collins who supplies "Boilers, Pipes, Piping and Pumps," and as usual he tells the reader just what he wants to know. He does not say anything about Hero, Savary or Newcomen, but he harps on troubles and how to meet them. When the superintendent goes down to the works the fireman does not ask him what was the shape and capacity of the boilers of Lord Worcester, but he tells him the boiler is priming or won't make steam and wants to know why. It is the professor of steam engineering who never had boilers to run who fills up his treatise with irrelevant matters about Watts' early studies on the operation of a kettle.

E. E. Sommermeier's "Coal" has been reviewed in these columns already. It is a preëminently practical book, written by a man who has had long experience in analyses. The operations of the analyst are conducted in the laboratory and not in the field. The professors are able to discuss them therefore as practically as field workers and keep their treatises free of the side issues with which books about field matters are too often cumbered. H. J. Thorkelson's "Air Compression and Transmission" is also an old acquaintance. It needs no further words of commendation.

Hubert E. Collins treats of "Steam Turbines" in his usual practical way. A. T. Shurick's "Coal Mining Surveying" is an old acquaintance of the readers of "Coal Age." R. S. Brinsmade's "Mining Methods" is a reprint of "Mining Without Timber," with the matter not germane to coal mining omitted. "Practical Shaft Sinking" is handled by a man of experience—Francis Donaldson, chief engineer of the T. A. Gillespie Co.

The "Power Catechism" is provided by F. R. Low, the competent editor of "Power." The information he provides is in clear language which cannot fail to make the meaning of the author readily comprehended. "Practical Mathematics," by Claude Irwin Palmer, associate professor of mathematics at the Armour Institute of Technology, treats simply of arithmetic, elementary mathematics, graphics, elementary trigonometry, logarithms and mensuration.

"Mining Equipment" and "Mine Organization and Safety" have been specially written for this series by Frank H. Kneeland, an associate editor of "Coal Age." They are both strictly uptodate, but are both somewhat too brief for the importance of the subjects treated. W. M. Weigel's treatise on "Ventilating Equipment," already published in "Coal Age," covers the subject of fans thoroughly, though it largely omits reference to the mathematical theory and practice of mine ventilation.

## Electric Signals for Mines

ELECTRIC MINE SIGNALING INSTALLATIONS. By G. W. Lummis Paterson. Pp. viii + 191 + 4 index; 4⅞x7½ in. 139 fig. D. Van Nostrand Co., 25 Park Place, New York City, 1914. Price $1.50, cloth boards.

This book can be recommended without reservation to anyone who desires information on electric mine-signaling. It must be said, however, that wireless methods are not discussed and that no reference is made to telephones or telephonic wiring.

The writer opens up his book with accounts of "ringing keys and tappers," starting with the regular telegrapher's key, which is only suited to dry places. He describes later gas- and watertight keys, some of which are actuated by pushbuttons and others by bell-pulls located outside the box which contains the actual key.

Then follows a section on the various types of bells—the trembling type, which is apt to make a continuous stream of sparks and is dangerous in gas, the single stroke, the shunt and the differential bells. The advantages of the different bells are all set forth, and also their disadvantages for certain classes of work. A review then follows of the different types of mounting, the author dividing all signal bells into wood-box bells, block-signal bells, waterproof bells, gas- and water-tight bells and magneto bells.

A chapter follows on electric mining indicators or annunciators, these being divided into mechanical and electric replacement indicators, needle and visual-signal annunciators, the latter with continuous relay and electrical replacement. Bell-signal indicators also have consideration. In the next chapter electric generators for signal work are considered and the utilization of available alternating electric power by the aid of transformers and rectifiers, two types of the latter being described—the vibratory and the "Adnil." Cells and their handling are treated at some length, the cells described being various types of the Leclanché cell—the porous-pot with flat and cylindrical zincs, the central zinc or carporous, the agglomerate-block and the sack cells. The Fuller, or bichromate, cell receives a notice.

The wiring for shafts and engine planes is elaborated at length, and an appendix concludes the book, giving the special rules for the installation and use of electricity in coal mines under the Metalliferous Mines Regulation Acts, the Coal Mines Regulation Acts and the British Home Office regulations under the Coal Mines Act as far as these refer to signaling. The regulations of the Bureau of Mines, made we presume for the mine at Gebo, Wyo., and the electrical symbols for mine maps suggested by H. H. Clark, fitly conclude this excellent little book on a subject hitherto somewhat inadequately treated.

# Coal and Coke News

## Washington, D. C.

The Bureau of Mines has prepared and has just issued Technical Paper No. 97 on the subject of "Saving Fuel in Heating a House." The paper first discusses various kinds of fuel and affords the following outline of the advantages and disadvantages of various fuels.

| Fuel | Advantages | Disadvantages |
|---|---|---|
| Wood | (*a*) Cleanliness, (*b*) cheerful fire, (*c*) quick increase of heat, (*d*) cheap in some localities. | (*a*) Low fuel value, (*b*) large storage space necessary, (*c*) labor in preparation, (*d*) scarcity, (*e*) does not hold fire long, (*f*) unsteady heat. |
| Anthracite | (*a*) Cleanliness, (*b*) easy control of fire, (*c*) easier to realize heat in coal than is the case with other coals, (*d*) steady heat. | (*a*) High price, (*b*) difficulty of obtaining, (*c*) slower response to change of drafts. |
| Bituminous coal | (*a*) Low price, (*b*) availability, (*c*) high heat value (in the best grades), (*d*) low percentage of inert matter (in the best grades). | (*a*) Dirty, (*b*) smoke produced, (*c*) more attention to fire and furnace necessary than with anthracite. |
| Subbituminous coal and lignite | (*a*) Relatively low price, (*b*) availability (in some regions), (*c*) responds quickly to opening of drafts. | (*a*) Slakes and deteriorates on exposure to air, (*b*) takes fire spontaneously in piles, (*c*) heat value generally low, (*d*) heat in fuel difficult to realize, (*e*) fires do not keep well, (*f*) gases generated over fire pot sometimes burn in smoke pipe, causing excessive heating. |
| Peat | (*a*) In general, the same as for wood. | (*a*) Low heat value, (*b*) bulkiness. |
| Coke | (*a*) Cleanliness, (*b*) responds quickly to opening of drafts, (*c*) fairly high heat value. | (*a*) Bulkiness, (*b*) liability of fire going out if not properly handled, (*c*) fire requires rather frequent attention unless fire pot is deep. |
| Oil | (*a*) High heat value, (*b*) immediate increase of heat, (*c*) cleanliness, (*d*) small storage space necessary. | (*a*) High price, (*b*) difficulty of safe storage. |
| Gas | (*a*) Ease of control, (*b*) cleanliness, (*c*) convenience, (*d*) immediate increase of heat. | (*a*) High price in many places. |
| Electricity | (*a*) Every advantage. | (*a*) High price. |

The paper next considers types of heaters suitable for residences and small buildings and reaches the conclusion that hot-water equipment, while most expensive to install, is probably least costly to operate.

Methods of operation of heaters while in use with various sorts of fuel are finally discussed, the main points developed being as follows:

"1. The amount of fuel consumed in heating a house depends on many factors. Some of the factors are within the control of the householder; others are not.

2. Both convenience of operation and consumption of fuel depend on the system of heating (and ventilation) installed, and convenience, fuel consumption, and first cost should be considered in making a selection.

3. The heater should be large enough to meet continuously and without attention for periods of eight hours the demands for heat in all weather except the most severe.

4. Heating equipment that burns satisfactorily and economically one kind or size of fuel may not be well adapted to burning another.

5. Ascertain by experiment what fuel and what method of using it are best suited to your needs. As a rule, the effort to obtain this information will be amply rewarded by the saving that will result.

6. Attend to the fire regularly and try to anticipate the demands for heat.

7. Keep the heat-absorbing surfaces of the heater free from soot and dust by regular cleaning.

8. Heating systems often fail to meet the demand for heat in severe weather because of insufficient draft. To supply additional heat, the heater must be able to burn more coal.

9. The more probable causes of insufficient draft are:

a. Chimney not high enough, or having its top too near some tall object.

b. Chimney, smoke pipe, or gas passages of heater clogged with soot or débris, sometimes through the breaking of a partition between two flues in a chimney.

c. Leaky connection of smoke pipe to heater or to chimney.

d. Accidental closing of hand damper in smoke pipe.

e. Clogging of fuel bed by clinkers.

f. Too great a length of horizontal smoke pipe between the heater and the chimney."

The following general suggestions are offered for the firing of different fuels:

"Fundamentally, the process of combustion is the same for all fuels. Whether the fuel be wood, coal, or oil, heat is produced by the carbon or other combustible elements combining with the oxygen of the air. The oxygen and these combustible elements unite in certain proportions at certain temperatures and a definite quantity of heat is evolved in each case. Some of the heat is absorbed by other parts of the fuel, heating them to ignition temperature, and some of the heat is absorbed by the nitrogen in the air supplied—ordinary air contains about 80 per cent. nitrogen—and by the gaseous products of combustion, raising them to a high temperature. Part of the heat radiated from the glowing fuel or conveyed by the hot gases passes over the heating surfaces of the boiler or furnace, is taken up by the water or air heated, and is distributed to the rooms of the house.

"The admission of more air through the fuel bed or fire door than is required to furnish the oxygen necessary for complete combustion tends to cool the fuel bed and the gases that rise from it. As oxygen unites with combustible elements in definite proportions, the theoretical amount of oxygen and hence of air needed for the complete combustion of a given weight of coal can be computed. However, in burning any kind of fuel on a grate, considerable heat is lost in unburned material if only the quantity of air theoretically required be admitted, because it is practically impossible to get all of the particles of combustible matter in the fuel to unite with all the particles of oxygen in the air theoretically required. An excess of air must always be supplied, but this excess should be neither more nor less than is necessary to insure complete combustion.

"The importance of providing an inlet for the air that must enter the furnace room is frequently overlooked, especially in small, tightly-closed furnace rooms. Roughly, 150 to 300 cubic feet of air are required for each pound of coal burned, and, to prevent trouble from insufficient draft, some means for admitting this air to the furnace room must be provided. Usually enough air leaks into the furnace room through cracks and poorly fitting windows, but the tighter the construction of the room the greater the need of an air inlet."

Then follow suggestions "which have to do especially with preventing incomplete combustion and the admission of a large excess of air into the furnace, and the minimizing of the attention necessary to maintain the proper temperature in the rooms heated."

### HARRISBURG, PENN.

Employers of labor who have not yet a good understanding of the child labor law and the workmen's compensation bill passed at the last session of the Legislature may find assistance at the branch offices of the state which will be opened in the anthracite and bituminous coal field the latter part of this month.

A force of investigators has been employed to gather information as to the number of children employed about coal mines and other industries who will come under the continuation school requirements and as to the number of employees who will come under the provisions of the compensation act.

Children under 14 years may not be employed in any industry, but, children between 14 and 16 who are employed must be given instruction for a certain number of hours every week. Since they cannot very well be placed in classes with children who attend school regularly it is incumbent upon the authorities to make special provision for them. The working children may be placed in separate buildings or in separate rooms or they may be given instruction in offices of the collieries or mines or mills and factories in which they are employed, but the arrangements must be attended to by the school directors of the community.

It is doubtful if many of the larger coal companies will stand for this annoyance of adjusting their working conditions to the requirements of the law, and will discharge all boys under 16.

There is yet much doubt in the minds of many employers of labor as to their liability under the compensation, especially

as to those who are only employed periodically and the insurance features of the act.

There are three ways to carry insurance. These are the state fund, mutual companies and the old-line stock companies. The state fund is a misnomer, for except for the first three and a half years, no state aid is offered. After that all cost must come out of the premiums. Hence the fund must be self-supporting. The one great advantage of insuring in the state fund is that on payment of the premium there is relief from personal liability, possible claims going against the fund and not the employer. There is no lien against his property. There is another side, however, to the state fund, it is pointed out. It can insure only on the compensation side of the law. It does not afford the broad insurance offered by the insurance companies. It cannot insure against suits at common law defense.

Mutual companies will be operated without profit, and whatever surplus accrues is returned to policyholders, while a stock company works primarily in the interests of its stockholders and secondarily in the interests of those who insure with it. The drawback of the mutual, which it is said is being considered by many coal companies, is that policyholders may be called upon for a second assessment within a year if a big loss is incurred which requires additional funds. But to offset this the insurer knows that in case there is a surplus he will get his share back.

## PENNSYLVANIA

### Anthracite

**Tamaqua**—The night schools for mine workers are beginning their sessions throughout the anthracite region, and mine workers are taking advantage of the courses of instruction. Students of these schools last spring secured approximately 20 mine foreman's certificates and 50 assistant mine foreman's certificates. The number of students now enrolled in these schools exceeds that in the membership of the mining institutes which were their forerunners.

**Pittston**—A track walker on the Lackawanna & Wyoming Valley R.R. (the Laurel Line), recently discovered a cave under the north-bound rails in time to prevent the wrecking of a train that was overdue. Mining in surface veins is believed to have caused the subsidence. The road has had much trouble with caving and once was obliged to re-route the tracks between Pittston and Avoca.

**Lansford**—All collieries of the Lehigh Coal and Navigation Co. are now working to full capacity. The demand for railway equipment is so great that a large number of foreign cars are being loaded.

**Pottsville**—After investigating the recent disaster at the Coaldale mine, James E. Roderick, chief of the State Department of Mines, has stated that there was no negligence on the part of the company officials or of the mining department. It had been rumored that the miners' organization intended to take action against the company.

The Schuylkill County court has upheld the Lehigh Coal and Navigation Co. in a suit to enforce a reservation in a deed restricting the sale of liquor on a piece of ground which the company sold at Coaldale. A saloon-keeper had endeavored to transfer his business to the property and the decision in this suit practically makes prohibition territory of all the company's land.

The Lehigh Valley Coal Co., on Oct. 9, announced the immediate resumption of work at the Blackwood colliery at Blackwood. There has been no work at this colliery since last June. Seven hundred men and boys will be given employment.

**Shenandoah**—All the collieries in this section worked full time the past week, the first time in 10 months. It was semi-officially announced on Oct. 9 that full time would continue in this region during the coming winter.

### Bituminous

**Uniontown**—Operators in this region, confident that coke will reach the high-water mark of $3 by the first of March, if it does not go beyond that figure, are refusing contracts for a year's delivery at $2.25 a ton. Practically every oven in the region is now in operation and the output is practically on a capacity basis. The labor proposition is becoming a problem to the operators hereabouts and is causing them much trouble.

The sale of 3,000 acres of the West Virginia coal held by local people, which has been pending for the past few days, will not be consummated according to a statement of one of the interested parties. For nearly a week negotiations have been under way whereby a Pittsburgh concern was to secure the coal lands, but there is practically no chance of the deal being completed, the owners maintaining a stiff price for their holdings.

**Elco**—The last car of coal was hauled out of the Vesta No. 2 mine a few weeks ago and the work of tearing up the tracks, removing the machinery and dismantling the plant generally is now under way. This famous old mine was known 30 years ago as the American works and passed through several hands before it finally fell into possession of the Vesta Coal Co.

**Standard**—Forty ovens were blown in at the Standard mines of the H. C. Frick Co., recently, giving employment to additional men and putting 90 per cent. of the ovens into operation. Thirty additional ovens have also been fired at the Dorothy plant of the Frick company.

**Pennsville**—The plant of the Pennsville Coke Co. is being dismantled and the equipment sold. Operations ceased about two years ago after 41 years of almost continuous activity.

**Connellsville**—The Connellsville coke region is now producing approximately 400,000 tons of coke per week. The H. C. Frick Coke Co. recently put 500 additional ovens into operation, and the majority of the plants are working full time except when handicapped by labor scarcity. There appears to be no actual car shortage but railroads are pressed to provide adequate transportation facilities.

## WEST VIRGINIA

**Kingwood**—The Deaker Hill Coal Co. recently became the owner of several coal tracts situated in the Kingwood district along Morgans Run. It is intimated that the coal will be operated in the near future. It is believed that an opening will be made on Morgans Run near Irona, the coal being shipped over the West Virginia Northern R.R.

**Charleston**—It is estimated that 8000 Greeks will leave the mines of West Virginia within the next few months. It is thought that the shortage resulting from their departure will be even more serious than that due to the recall of the Italian reservists.

The Supreme Court of Appeals recently granted an alternative writ of mandamus against Lee Ott, state compensation commissioner, compelling him not to require the United States Coal & Coke Co. to pay the sum of $17,054.79 or any part thereof which the commissioner demands, as the proportionate part of all liabilities against the Workmen's Compensation Fund, or show cause why he should do so. This writ is returnable Oct. 19.

**Grafton**—One hundred and eleven men recently took the examination for mine foreman and fire boss. It was anticipated that not over 100 candidates would present themselves, and the increased number which appeared was highly gratifying to the men in charge.

**Morgantown**—It is reported that the Powellton and Elk Ridge operations will work every day for at least one year. It is reported that the coal company has closed some fine contracts, to fill which will require the constant operation of all the mines on Armstrong Creek for a period of not less than 12 months.

**Wheeling**—It is reported that a car shortage throughout the state is handicapping coal operations. The main cause, it is said, is the commandeering of coal cars for the handling of farm crops in the West, the crop which takes most of the coal cars being said to be sugar beets.

**Huntington**—Communications have been received from coal companies in the Logan field asking the employment bureau here to furnish as many as 200 miners at once for immediate employment in their fields. The Ethel and Bengal coal companies have made requests for large numbers of miners in the past few days.

## ALABAMA

**Dogwood**—The Montevallo Domestic Coal Co. which was organized recently, has opened a slope which was started some few years ago on the Montevallo seam. This will shortly be shipping a good output of coal, the average thickness of the seam being 3 ft. 9 in. of clean fuel.

## TENNESSEE

**Harriman**—Creditors of the Big Brushy Coal Co. of Petros which recently went into a receiver's hands, have decided to continue the business.

## KENTUCKY

**Whitesburg**—There is little car shortage complaint now among the coal operators of the eastern Kentucky field. Operators have no trouble to get all the cars they can load. All the mines of the Elkhorn field are running full time.

The Diamond Block Coal Co. has several hundred men at work constructing a mining town on the Buffalo Creek branch of the Louisville & Nashville Ry. in Perry County.

### INDIANA

**Fontanet**—The Coal Bluff Mining Co.'s mine which has been closed for a large part of the summer has been reopened with a full force, about 400 men.

### ILLINOIS

**Marion**—The West Virginia Coal Co., which has been operating a mine on the Iron Mountain R.R. at this place, is making arrangements to sink another shaft 1½ mi. north of the present one, on the Illinois Central R.R. Work is to be begun soon. The present mine has an output of 1500 to 2000 tons a day. The new shaft will enable the company to greatly increase its output and ship by the Illinois Central as well as the Iron Mountain. The company also has some other group mines near Belleville.

**Marissa**—The Egyptian Coal & Mining Co. has resumed operation at its mine here after having been closed down for a year on account of business depression. Electric mining machines have been installed. The mine will give employment to 75 men. The output will be handled by the Kolb Coal Co., St. Louis.

**Mount Olive**—The Progressive Club of Mount Olive held a mass meeting a few days ago to discuss steps to prevent the closing down of Mine No. 5. The Madison Coal Co., which owns the mine, has decided to abandon it but will leave it as it stands and lease it if some arrangement to that end can be made. The mine is said to be in good condition, with enough coal to run for several years.

**New Baden**—The New Baden mine of the Southern Coal & Mining Co. is soon to be closed and coal taken for all requirements from the company's mines at Belleville, the Little Oak and the Shiloh. The New Baden mine has been working steadily and the other two only about half time. It is announced that the two mines will be worked regularly after the New Baden mine is closed. The two mines employ 700 men.

### IOWA

**Des Moines**—Owners of the Miners' hospital at Albia have acquired the Drake university medical building and grounds in this city to be used primarily as a hospital for coal miners in this vicinity. The institution will be known as the Iowa Industrial Hospital of Des Moines and will be operated under plans similar to the one at Albia excepting that the field of operation will include employees of various other industries as well.

**Knoxville**—The state board of control is prospecting for coal at the Knoxville inebriate asylum, in hope of striking veins of sufficient thickness to supply various state institutions. Workmen report finding a 3-ft. vein. Additional borings will be made to determine whether it is continuous. The board of control uses 110,000 tons of coal annually at the state institutions, and if even a portion of the fuel can be mined at Knoxville, a big saving can be made.

### TEXAS

**Lytle**—The Lytle Coal Co. has begun the sinking of a shaft near the mines of the Carr Coal Co. which were operated here up to about two years ago. The new mine will be developed at once. About 50 men are at work sinking the shaft.

### OKLAHOMA

**McAlester**—Increased activity in the coal fields here is reflected by increased pay rolls of the mines operating in this section. Coal operators say the activity here is due largely to the increased demand for export coal. The monthly pay rolls of the mines in this district will amount to $600,000. At present 10,000 tons of coal is being produced daily.

### COLORADO

**Denver**—Examinations by the board of examiners for mine official certificates will be held in nine cities of the state during November. These examinations will be as follows: Glenwood Springs, Nov. 8; Grand Junction, Nov. 9; Gunnison, Nov. 11; Canyon City, Nov. 12; Walsenburg, Nov. 15 and 16; Trinidad, Nov. 17 and 19; Colorado Springs, Nov. 20; Denver, Nov. 22 to 24; Steamboat Springs, Nov. 26.

## FOREIGN NEWS

**Nanaimo, B. C.**—Thomas Graham, provincial inspector of mines of British Columbia, and J. H. Tonkin, manager of the Pacific Coast Coal Co., Nanaimo, B. C., were recently committed for trial by Magistrate Scott of Nanaimo on a charge of manslaughter arising out of the accident at the Reserve mine last February in which 20 lives were lost. It is charged that inaccurate maps of the mine and of adjoining mine workings were allowed to be used by the officials.

**Toronto, Ont.**—The annual report of the Mines Branch of the Department of Public Works of Alberta for the calendar year 1914 shows a total coal production of 3,821,739 short tons, being a decrease of 421,034 tons as compared with 1913. Of the total output 1,953,367 tons was bituminous, 1,697,401 lignite and 170,971 anthracite. The total number of mines in operation was 264. The number of new mines opened was 42 and the number of mines abandoned 45. The average number of persons employed was 8,170. Coke was produced to the amount of 29,058 tons and briquettes to the amount of 109,082 tons. The number of deaths caused by accidents inside the mines was 208, which includes 189 persons killed in the Hillcrest disaster, in addition to which 35 persons were seriously and 45 slightly injured by accidents inside the mines. Considerable progress has been made in training for mine-rescue work, a station having been installed and equipped at Taber and a mine rescue car in the Canmore district. Instruction in mine-rescue work was given to 330 persons. The report notes that apart from the Hillcrest disaster 41 per cent. of the accidents occurred in mines producing under 100,000 tons per year, which is probably due to the fact that mines where fewer than 30 men are employed are under the charge of men who do not hold first-class certificates and are not as conversant with the provisions of the Mines Act as those in charge of the larger mines.

## PERSONALS

John Whelan, Jr., of Massillon, Ohio, has accepted the position of secretary of the Pittsburgh Vein Operators Association, succeeding John Zelenka.

N. S. Hachita, an engineer for the Lehigh Valley, spoke on "Concrete and Its Ingredients," at the opening fall session of the Pittston Mining Institute.

Owen C. Jones, of St. Clair, Penn., by appointment of the Schuylkill County board, succeeds James Kennedy as mine foreman examiner of the eighth anthracite district.

John C. Williams, foreman at Thomas shaft, and John McNulty, foreman at Butler colliery, of the Pennsylvania Coal Co., have been transferred, each taking the other's place.

W. O. Davis, secretary and treasurer of the Kentucky River Coal Corporation is spending several weeks in Hazard, Ky., clearing up a mass of detail work which has accumulated at the office.

Charles W. Mills, president of the Climax Coal Co., with offices in Philadelphia, was on Oct. 9, appointed by Secretary Wilson as a Federal conciliator to settle the strike of machinists in the job shops in Pittsburgh.

Samuel Dunn, of Chicago, editor of the "Railway Age Gazette," will speak in Louisville, Ky., on Oct. 19 under the auspices of the Louisville Transportation Club. He will talk on the relations between shippers and carriers.

J. L. Good, vice-president of the Pittsburgh & Buffalo Co., has severed his connection with that firm and accepted the position of general sales manager of the National Coal Co., of Cleveland, Ohio, with offices in the Rockefeller Bldg.

Samuel Anderson, for many years assistant mine foreman at the Seneca colliery of the Lehigh Valley Coal Co., has been appointed inside foreman at the Maltby colliery, at Maltby. He succeeds D. P. Thomas, who has been ill for a long time.

James Martin has severed his connection with the Paint Creek Collieries Co., and accepted the position of general manager of the Wyatt Coal Co., the McGregor Coal Co., the McCaa Coal Co., and the Macalpin Coal Co., with offices in the Union Trust Bldg., of Charleston, W. Va.

John F. Nuttal, a former mine manager of Southern Illinois who disappeared from Christopher, Jan. 19 last, has written to his wife, who is at Marion, Ill., that he is now a sergeant-major in the Royal Engineers of the English Army. The letter was written from Southampton, England.

## OBITUARY

C. E. Sauters, of Martins Ferry, Ohio, superintendent of the Gaylord mines Nos. 1 and 2, died recently in St. Joseph's Hospital in Elmira, N. Y., following a long illness from a complication of diseases. He is survived by a wife and five children.

William Parker, of Toronto, Can., died suddenly Oct. 5. He was at one time a well-known coal operator, and controlled several Pennsylvania mines, but retired from active business some years ago on account of ill health. He was 60 years of age at the time of his death, and is survived by four sons and three daughters.

## INDUSTRIAL NEWS

**Dorothy, Penn.**—The Dorothy plant of the H. C. Frick Coke Co. recently received orders to fire up 30 additional ovens. This makes 160 ovens out of 230 in blast at this plant.

**Middlesboro, Ky.**—All records for traffic on the C. V. division of the Louisville & Nashville were broken on a recent Saturday when 500 odd loaded cars, mostly coal, and 100 empties passed over into Corbin.

**Des Moines, Iowa** — The principal office of the Carney-Cherokee Coal Co. has been transferred from this city to Carney, Iowa. An amendment to the articles of incorporation has been filed, providing for the change.

**Frankfort, Ky.**—The Federal Court has now under trial the case of the Kentucky Coal Lands Co., of New York against the Mineral Development Co., of Pennsylvania. This suit involves the title to 12,000 acres of coal land in Letcher county.

**Huntington, W. Va.**—It is stated that the Kentucky Mine Owners Assn., recently held a committee meeting adopting resolutions protesting against the proposed advance in rates on West Virginia coal destined to the markets of the Northwest.

**Charleston, W. Va.**—The coal carrying railroads have decided to file with the Interstate Commerce Commission a revised tariff which would increase the freight rate more than 25 cents per ton on eastern shipments from the West Virginia coal fields.

**Des Moines, Iowa**—First-aid teams are to be established not only in coal mines about Des Moines but also in the different industrial establishments. These teams will be instructed in giving first aid for all injuries from fractured limbs to broken backs.

**Paducah, Ky.**—Officials of the West Kentucky Coal Co. estimate that their losses in the recent hurricane at New Orleans will reach $170,000, involving as it did 72 loaded coal barges which went down. These were not insured. They sunk off Donaldson, La.

**Charleston, W. Va.**—Officials of the Chesapeake & Ohio R.R. recently met in this city to discuss the car shortage which has now existed for about five weeks, and which is the first one in approximately three years. It was stated, however, after the meeting that no immediate relief was in sight.

**Ridgway, Penn.**—The Erie R.R. is said to have recently received an order for 1,000,000 tons of coal, and it is said that shipment from Brockwayville mine has already commenced. It is reported that the coal is to be sent abroad from an eastern port. Four hundred train loads will be required to fill the order.

**Greensburgh, Penn.**—The Pittsburgh Coal Co. has entered suit against Jesse H. and Jacob L. Steger to recover the sum of $3,500 for coal alleged to have been mined by the defendants from the coal lands of the plaintiff. A total of 1,769 tons of coal is alleged to have been mined by the Sager Bros. from the plaintiff's holdings.

**Natchez, Miss.**—The Pittsburg Coal Co. is making an effort at this place to ascertain if any of its 13 barges which went down in the storm of Sept. 29 can be raised and salvaged. Lines have been attached to one of the pump boats which sunk, and it is thought that it may be recovered, but the fate of the other pump boats and barges is problematical as yet.

**Columbus, Ohio**—The first of a number of suits of the New York Coal Co. against the Sunday Creek Coal Co. for royalty on leases of Ohio coal lands was recently decided in favor of the plaintiff. The jury returned a verdict for $4536 and interest against the Sunday Creek Coal Co. for leased land at Orbinton, Hocking County. The royalty is 7½ cents a ton for all coal mined.

**Pittston, Penn.**—With the hope of securing the $5000 bonus offered in its contract for the completion of the Ewen breaker, of the Pennsylvania Coal Co., replacing the structure burned last winter, by Jan. 1, 1915, the contracting company is redoubling its activity. The breaker is to be of concrete and steel entirely and will be absolutely fireproof. The framework is largely up.

**Whitesburg, Ky.**—A transportation of about 100 laborers, mostly foreigners, arrived in Fleming recently to be employed by the Elkhorn Mining Corporation. Other increases and extensions are promised by the company in its different plants in order to fill large orders which are now on hand for future delivery. Mining activities are daily increasing in the eastern Kentucky field.

**Charleston, W. Va.**—Operators of southern West Virginia state that large amounts of coal have been ordered by the French Government from producers along the Chesapeake & Ohio and Norfolk & Western railroads, and that the time limit for delivery is six months. One company alone is said to have accepted an order for 600,000 tons, and it is said that this order is the smallest of many.

**Chicago, Ill.**—Both the Knox County operators and those of the Clinton field have perfected sales organizations something along the lines of the Franklin County, Illinois system. The Knox County operators intend to conduct an educational campaign designed to teach the public how to obtain the best results from their coals, and are looking for an efficiency engineer to take charge of this work.

**Wilkes-Barre, Penn.**—The Nordberg Mfg. Co., of Milwaukee, Wis., recently received an order for two steam and two electric mine hoists from the Lehigh & Wilkes-Barre Coal Co. The Nordberg company has in the past constructed hoists mostly for large metal mines of the Lake Superior and Western districts, although in a few cases hoists have been built for coal mines. The steam hoists in this order will be among the largest and most complete in the anthracite region.

**Wilmington, Del.**—The property and business of the E. I. du Pont de Nemours Powder Co., of New Jersey, was recently sold and transferred to E. I. du Pont de Nemours & Co., of Delaware, which corporation was organized for the purpose of taking over and carrying on the business. The new firm assumes all liabilities of the old company except capital stock and sundry debts, and will carry out all contracts of the old firm, there being no change in the personnel of the management, operation, or methods of handling business. The capital stock of the new corporation amounts to $120,000,000.

**New York, N. Y.** — Charging that the Delaware, Lackawanna & Western R.R. has failed to collect demurrage on barges detained at the New York Lighterage station the Federal Grand Jury has returned 20 true bills against the company for failure to apply the rules of the published tariffs as approved by the Interstate Commerce Commission, and which the Government will endeavor to prove is a violation of the Elkins law. The indictments were brought on offenses alleged to have been committed on shipments of anthracite coal from Pennsylvania to New York from October, 1912, to October, 1914.

**Superior, Wis.**—Negotiations for the leasing of the Sunday Creek Coal Co.'s dock to the Lehigh Valley Coal Sales Co. have been concluded, and Superintendent Emil Emmert recently took charge of the dock on behalf of the Lehigh interests. Only that portion of the dock which has been used for handling and storing anthracite will be utilized by the Lehigh firm, and it is said that the terms under which the dock has been leased are virtually a contract, whereby the Sunday Creek company handles anthracite for the Lehigh firm during the coming winter. The contract only runs until next spring.

**Toronto, Ont.**—Thomas Richardson M. P., of Whitehead, England, representing the English coal miners' unions and Richard Baird, a representative of the British colliery owners, are in Canada on their way to the Pacific Coast. There are upwards of 3000 British Columbia miners out of work and the unions there communicated with the English unions asking if these men could be taken to England and employed in the coal mines there. A large proportion of the British Columbia miners are from the British mining districts, and it is anticipated that Messrs. Baird and Richardson will take back many of them to their native localities.

**Pittston, Penn.**—With an avalanche of orders that poured in with the first frost and heavy shipments for storage purposes, the coal mines of the Upper Anthracite field are working steadily, after a summer of spasmodic operations. The effect is apparent in the action of the railroads in calling out crews and extra men who were practically idle during the warm months. For weeks steadily, the Lehigh Valley has been stocking freshly mined anthracite at the rate of 125 cars per day in its storage plant above Coxton Yards and reports of heavy storage are being received from other roads traversing this district. There is furthermore a heavy demand for steam sizes, indicating that other industries are piling up anthracite for commercial uses.

# Coal Trade Reviews

## General Review

**Anthracite distribution at record rate for the season and prices stiffer. Growing labor and car shortages the features of the bituminous situation. Spectacular advance in vessel rates restricts exports. Consumption in iron and steel lines at maximum rate.**

**Anthracite**—Prices have materially stiffened, and while individuals are still occasionally offering slight concessions, the large companies are slowly but surely getting the situation well in hand. Distribution is at the record rate for the season to date. Shortages of certain kinds of equipment have been reported in the mining regions, and some of the companies have already been forced to draw on their storage supplies. Thick weather along the coast has effected shipments to down East ports, and some anxiety is developing at points where navigation closes in November. The outlook is for a favorable business throughout the balance of the year.

**Bituminous**—There is no particular snap to the trade, but the market is steady and firm. Determination on the part of the agencies to realize better prices, supported by the decidedly favorable turn to general business conditions, are more responsible for the improved situation than any insistent demand. Very slight price advances are noted on certain grades that railroads are stocking heavily. Agencies generally have fair orders on hand, particularly for shipment all-rail. Labor and car shortage continue the leading features of interest. Attractive wage offers in other lines, such as the steel industry, are drawing men away from the mining regions, while shortage in transportation facilities is crippling mine operations seriously. The market is sensitive and will respond quickly to any interruption in operations or sharp increase in demand.

**Exports**—Vessel rates on coal fixtures to Italian ports are at a prohibitive level and no charters for that country have benn announced during the past week for the first time in a long period. The situation in this respect is general all over the world as is evidenced by the sharp advance in English rates following the withdrawal of Greek vessels from British shipping; remarkable high freights are being reported from England to South American ports. The export movement in consequence, is light from all American ports, but it is clear that the relapse is regarded as only temporary; the generally feverish interest is still noted in export circles and the larger companies continue sending representatives abroad.

**Lake Trade**—Coal consumption in iron and steel lines is running easily ahead of all previous records. Cooler weather has also given a mild impetus to domestic trade while the railroads are consuming a larger tonnage and putting some coal into storage. It is evident that there is less pressure to sell consignment coal while renewal of orders are more frequent. The car situation grows more ominous as the season advances; some roads have even announced that only 75% capacity allotment will be made for the time being, and the shortage is spreading to all parts of the country. The vessel situation for shipment up the Lakes is also becoming acute. Every effort is being concentrated on getting all the coal down the Lakes possible, and vessel owners are showing a disposition to abrogate contracts with coal shippers rather than lose time loading and discharging coal.

**Middle Western**—Lower temperatures have brought a real snap to the domestic business, and there has been a general broadening of the demand in all directions. Rail shipments out from the upper Lake ports have been the largest of the season to date. The demand is heavy enough to stiffen prices, and still further advances are anticipated in the very near future. Some operators are reporting unfilled orders on hand. The reaction following the increase in freight rates to the Northwest has been scarcely preceptible. Mines are slowly getting under full operation, or as full as the restricted car supply will permit.

**A Year Ago**—Anthracite steady but lacking the customary snap at this time. Bituminous continues to drag and the export business is scarcely above normal. All markets are much dependent on colder weather. Lake shipping is somewhat better.

## BUSINESS OPINIONS

**Boston News Bureau**—So far as one can see the only real danger in the situation lies in over confidence. Everything that goes to make up a perfect condition of affairs seems to be with us. The products of the soil, the representatives of real wealth, are all that we could wish, and in view of the prospective demands of the world, are of more importance this year than ever before. As a nation we are in a position to take advantage of all our opportunities, and we are prepared to do so. We never knew our abilities because we were never put to the test before. The whole world today recognizes our power, financially and commercially. Our profits from the European war are accumulating and are giving us more courage in new undertakings. This is beginning to show already, and the outlook is for a tremendous growth in this direction. It is difficult to set the limit for this onward push. General business sentiment is steadily growing stronger, because people can begin to see definite signs of the improvement.

**Iron Age**—The volume of current business for 1916 delivery is not as great as might be expected with steel as scarce as it is and with the expectation general that this tightness will continue for months. Few mills are making any effort to sell for any part of next year, but the Steel Corporation's gain of 400,000 tons in unfilled orders is taken to mean that it has done more selling for the first half than its competitors. Some of the steel companies are holding off because they are well sold up for several months and look for higher prices. Apparently buyers for European governments have failed to appreciate the rate at which the mills have been filling up. France has held back large requirements for the first half of next year which must soon be placed. Italy has been asking for barb wire, plates, billets and bars running up to 100,000 tons and has encountered rising prices on all sides.

**American Wool and Cotton Reporter**—Improvement in the wool market continues. Fundamental conditions point toward great strength for considerable time ahead. Inquiries are being made indicating that manufacturers will buy more before long. Dealers have recovered from their worry over the removal of the embargo on crossbreds. The foreign markets are strong. The woolen goods market is in a generally satisfactory position and a rather radical improvement is looked for during the next few weeks. The outlook is more favorable in cotton goods and the prospect for still greater activity exists.

**Dun**—Current trade reports reflect the best conditions and prospects in many weeks, few obstacles to progress now being in evidence. Removal of important restraining influences imparts needed stimulus to new enterprise, and launching of many deferred undertakings attests the widespread confidence. While labor controversies are a drawback in some directions, notably in the East, troubles of this nature are usually adjusted before serious losses are sustained either by employers or wage earners. Broadly considered, the mercantile situation is steadily approaching a state of normal activity.

**Southern Lumberman**—Tangible and definite improvement of a character most gratifying to manufacturers and dealers alike is revealed in reports on the yellow pine market. Latest statistical reports made to the officers of the Southern Pine Association show the balance of orders on hand at 137 mills for the week ending Friday, Oct. 1, to be nearly 20,000,000 ft. in excess of unfilled orders at the same mills at the end of the previous week. While improvement in the hardwood market is not so marked, it is nevertheless becoming more general as the fall season advances. The betterment is slow, but is now recognized by shortage of stocks that are frequently inquired for.

**Bradstreet**—In the economic situation performance follows promise at a rapid pace, and as unfavorable factors are eliminated, even lagging lines are brought in touch with

the circle of growing activity. Industry shows notable activity. Shipyards are working at top speed, eight of the country's crops are of record proportions, this week's bank clearings reached peak point, textile mills are on full time, but the advance in cotton as well as the burdensome price of dyestuffs reduces profits. Building values for September show a sharp gain over last year, our relations to international political affairs are seemingly more reassuring than at any time since the European war started, and almost everywhere in the country optimism is rife.

**Marshall Field & Co.**—The dry goods business of the week has responded to the seasonable weather by an increase in wholesale shipments and more customers have been in the market than during the same period a year ago. The low stocks that retailers are carrying makes wholesale distribution a very sensitive barometer of the current dry goods business throughout the country. Collections show some improvement over those of the corresponding week last year. The cotton market continues firm with strong upward tendency.

# ATLANTIC SEABOARD

## BOSTON

**Prices are generally firm on Pocahontas and New River, but market rather sluggish. Georges Creek steady, and only slight improvement on Pennsylvania grades. Water freights unchanged. Anthracite demand brisk.**

**Bituminous**—The trend of prices on Pocahontas and New River is steady and firm, although occasionally inducements are made by various shippers to move accumulations. There is no snap to the market as yet; it is a situation that comes more from the determination of the operators to net better prices than any very insistent demand for coal. A week of fair weather causes things to look quiet again. Off-shore inquiry is also a little lighter, although the lull in that direction is considered only temporary.

Very little buying has developed in the past week. There are a few consumers who must place orders during October but there is apparently no haste on their part. Recent circularizing of prices on cars for delivery after Apr. 1 next have had some thing to do with this lack of interest among buyers. Arrivals are about normal, but practically all the coal received is on contracts. Perhaps less coal is available for spot sale than for a month past, but seasonable weather would be a great boon to this market.

Of Georges Creek there are ample supplies at all the loading ports. The demand is quiet but very nearly a normal tonnage is being received here on contracts. Export trade has also eased up somewhat on this grade.

The Pennsylvania coals are in somewhat better position than in July and August, rumors of the shortage helping to induce consumers to take on extra tonnages. All-rail there has been better business on this account, but after a month or so it will need some other factor to give any spurt to the trade. Prices are slightly firmer for spot coal but only on the better grades.

**Water Freights** maintain the level reached a week ago, 80c. continuing the rate to Boston from Hampton Roads on 3000 tons upward. From New York ports to Providence and New Bedford rates are firm at 45c.

**Anthracite**—The wholesale demand is brisking up and with some of the shippers there is now more or less delay. All the domestic sizes, not excepting chestnut, are in good request and in most cases there is a marked shortage of steam sizes. The retail trade continues active and the outlook is favorable for the balance of 1915. The prolonged thick weather along the coast has affected shipments to quite a degree, and at points where navigation may close the last of November there is beginning to be some anxiety over getting forward the usual quota.

Bituminous quotations, f.o.b. loading piers at ports designated, are about as follows per gross ton:

| | Philadelphia | New York | Baltimore | F.o.b. Mine |
|---|---|---|---|---|
| Clearfields | $2.15@2.65 | $2.45@2.95 | ..... | $0.90@1.40 |
| Cambrias and Somersets | 2.40@2.90 | 2.70@3.20 | ..... | 1.15@1.65 |
| Georges Creek | 2.92@3.02 | 3.22@3.32 | $2.85@2.95 | 1.67@1.77 |

Pocahontas and New River prices, on cars Boston, are $3.55@3.73, Providence, $3.50@3.68, and f.o.b. loading port at Hampton Roads, $2.80@2.85.

## NEW YORK

**Cool weather forcing out anthracite orders. Individual prices close to circular. Bituminous shares in the improvement. Labor and car shortages developing.**

**Anthracite**—The anthracite trade is showing gradual improvement. The weather has been mild, but still cool enough to make fires necessary and a good deal of coal has been going into consumption. Consequently retail dealers have been in the wholesale market, and distribution in all lines of trade is now on a larger scale than since the early days of spring. Most operations are now working full time, with labor in the regions growing scarce.

With the demand showing so much improvement, there is but little individual coal now being offered off the circular. Chestnut coal is active in all directions, line shipments of this size taking care of the entire output of some of the individual operators. At Tidewater, it has strengthened materially the decrease in shipments having brought about an excellent demand for rail deliveries. Stove continues in good demand, with egg the weakest of the prepared sizes.

The buckwheats are in good call, with the supply of free coals diminishing. Some of the large companies are finding fresh mined supplies inadequate to take care of orders, and are quoting purchasers on storage stocks. Prices in practically all instances on the steam sizes are up to the full circular, with only the lowest grades offering at concessions, which have grown relatively small.

Current quotations, gross tons, f.o.b. New York tidewater, are as follows:

| | Lower Ports | | Upper Ports | |
|---|---|---|---|---|
| | Circular | Individual | Circular | Individual |
| Broken | $5.05 | | $5.10 | |
| Egg | 5.30 | $5.20@5.30 | 5.35 | $5.25@5.35 |
| Stove | 5.30 | 5.20@5.30 | 5.25 | 5.25@5.35 |
| Chestnut | 5.55 | 5.30@5.55 | 5.60 | 5.35@5.60 |
| Pea | 3.50 | 3.25@3.50 | 3.55 | 3.50@3.55 |
| Buckwheat | 2.75 | 2.25@2.75 | 2.80 | 2.25@2.80 |
| Rice | 2.25 | 1.85@2.20 | 2.30 | 2.00@2.30 |
| Barley | 1.75 | 1.50@1.75 | 1.80 | 1.25@1.80 |

**Bituminous**—The tidewater bituminous situation shows more strength though prices on spot coals are not materially altered. Shippers are trying to impress the buyers with the fact that car shortages are already growing serious, and that production is being crippled thereby, but the result of this campaign has so far failed to create much of an impression in-so-far as spot prices at Tidewater ports are concerned. Prices at the mines are on a higher scale than the Tidewater quotations would indicate. This has resulted in a scaling down of shipments of unsold coal to tide to await prospective buyers, as operators are finding it possible to move coal now, at fair prices, to all rail consumers.

Labor shortage is materially restricting production. Miners are becoming scarcer as the steel and other industries increase their activities and bid against the operators for men. With most of the companies having a good portion of their output tied up until April first, they are not in position to hold out when it comes to paying workmen an increase that they cannot pass on to their customers.

Coke industry is very active and absorbing a lot of coal that would go into the steam trade ordinarily. Export shipments are showing a slump because of the tightened situation in ocean freight rates. Bunker trade is heavy.

Current quotations New York tidewater, per gross ton, are on the following basis:

| | South Amboy | Port Reading | St. George | Mine Price |
|---|---|---|---|---|
| Georges Creek Big Vein | $3.20@3.30 | $3.20@3.30 | $3.20@3.30 | $1.75@1.85 |
| Georges Creek Tyson | 2.90@3.00 | 2.95@3.00 | 2.95@3.00 | 1.40@1.45 |
| Clearfield: | | | | |
| Medium | 2.65@2.80 | 2.65@2.80 | ..... | 1.10@1.25 |
| Ordinary | 2.65@2.70 | 2.65@2.70 | ..... | 1.10@1.15 |
| Broad Top Mountain | ..... | ..... | ..... | 1.10@1.45 |
| Cambria County: | | | | |
| South Forks | 2.90@3.05 | ..... | ..... | 1.35@1.50 |
| Nanty Glo | 2.80@2.85 | ..... | ..... | 1.25@1.30 |
| Barnesboro | 2.65@2.70 | ..... | ..... | 1.10@1.15 |
| Somerset County: | | | | |
| Quemahoning | ..... | 2.80@2.90 | 2.80@2.90 | 1.25@1.35 |
| Medium | 2.65@2.70 | 2.65@2.70 | 2.65@2.70 | 1.10@1.15 |
| Latrobe | 2.45@2.65 | ..... | ..... | 1.00@1.10 |
| Greensburg | 2.85@2.90 | ..... | ..... | 1.20@1.25 |
| Westmoreland | 3.20@3.30 | ..... | ..... | 1.40@1.50 |
| West Virginia Fairmont ¾ | | 2.70@2.80 | 2.70@2.80 | .90@1.10 |
| Fairmont mine-run | | 2.60@2.70 | 2.60@2.70 | .80@ .90 |
| Steam | | 2.55@2.60 | 2.55@2.60 | 1.00@1.05 |
| Western Maryland | | 2.35@2.40 | 2.35@2.40 | .85@ .90 |

## PHILADELPHIA

**Anthracite has good week. Price stiffening. Stove leads with chestnut fair and egg dull. Pea still the source of trouble. Collections shaping up well. Bituminous trade fair with poor car supply causing trouble. Prices generally stationary.**

**Anthracite**—Business has improved, but it is possible that of the individuals has suffered to some extent. The shippers' prices have undoubtedly stiffened and while the big companies are adhering to circular the individuals occasionally take an even chance for the trade. Considerable business has been lost to the largest shippers by the individuals dropping the state tax. However, the large companies are rapidly coming into control as they usually do at this time of the year.

It has been an active week and the retailers have actually been busy. If it were not for the regrettable and apparently inexcusable price war in certain sections of the city, the business would have a fine start for the retail men as they go into the first of the six months of activity that looms before, to which they all have been looking forward so long and which the shippers especially predict are bound to be exceptionally active.

Pea is quite a problem just now; it is in strong demand at $2, usually with the tax, but it is not moving as rapidly as expected. Sales of this size should be very heavy at this time, especially this year when conditions are so very unusual. Shippers strongly hint that prices will advance. It is just possible that the large buyers are protected in a quiet way at the $2 price until the first of the year and this is leading the small buyer, who is not carrying capacity stocks by any means. Considerable "jockeying" of prices on this size is noted which may eventually result in quotations not getting any higher for some months to come.

It is the logical season to buy, before freezing weather comes making the preparation of all coal more or less uncertain and also difficult to unload. Yet despite these reasons there is no unusual demand, all orders being filled, and this is difficult to understand in face of the fact that the retail men are busy and most of the coal going out of their yards is pea size.

Chestnut is improving but it can still be bought at less than circular and the price usually varies with the size of the order. Stove maintains its position as the leader and the circular is firmly maintained. Egg is hard to move, with the individuals who are understood to have considerable on demurrage at the collieries. Buckwheat continues active and the supply of this size will probably be shorter as the season advances. Rice is plentiful and there have been a number of instances where it has been offered at 20 to 25c. off circular, but with very little success.

The short car supply has forced several collieries to shut down due in part to the lack of certain kinds of equipment.

Collections are better than for some time as dealers realize that when the rush begins the delinquents will have to take second choice. Movement of anthracite to Tide points continues good.

Quotations, exclusive of the Pennsylvania State tax of 2½% per gross ton f.o.b. cars mines and at Port Richmond are as follows:

| | Line | Tide | | Line | Tide |
|---|---|---|---|---|---|
| Broken | $3.50 | $4.75 | Pea | $2.50 | $3.25 |
| Egg | 3.75 | 5.00 | Buckwheat | 1.25 | 2.25 |
| Stove | 4.00 | 5.00 | Rice | .85 | 1.75 |
| Chestnut | 4.15 | 5.25 | Barley | .50 | 1.50 |

**Bituminous**—Most shippers have good orders in hand but there is no rush. A peculiar situation prevails in that the car supply is short without any concurrent briskness in the coal trade. Prices have not varied much with the exception of Fairmont coal; railroads have begun to accumulate stocks of this grade and the increased demand has advanced the price an average of 5c. per ton. There seems to be something of a lull in the export trade, but this is regarded as only temporary. Quite a number of local mining interests have representatives abroad, and this week still another of the large companies sent an agent to France.

Average prices per gross ton prevailing in this market are as follows:

| | | | |
|---|---|---|---|
| Georges Creek Big Vein | $1.70@1.80 | Fairmont gas, ¾ | $1.25@1.35 |
| South Fork Miller Vein | 1.55@1.65 | Fairmont gas, mine-run | 1.10@1.20 |
| Clearfield (ordinary) | 1.15@1.25 | Fairmont gas, slack | .75@ .85 |
| Somerset (ordinary) | 1.10@1.20 | Fairmont lump, ordinary | 1.05@1.15 |
| West Va. Freeport | .95@1.05 | Fairmont mine-run | .95@1.00 |
| | | Fairmont slack | .70@ .80 |

### HAMPTON ROADS

**Movement slows down appreciably. Foreign shipments mostly to Italy. Normal accumulation at Tidewater.**

The movement of coal from Hampton Roads ports during the week has not been as heavy as anticipated, both coastwise and foreign shipments being somewhat light. Export cargoes were principally to Italy going to Reggio, Genoa, Civita Vecchia, Naples, and Taranto. Coastwise shipments have been made to the New England market and have consisted principally of run-of-mine Pocahontas and New River although there has been some movement of high volatile.

The demand in both the home and European market has been light all week and so far as can be ascertained no large sales have been made for prompt movement. The accumulation of coal on the railroad yards is around normal with a fair supply in the storage plant at Sewall Point. Coal is constantly being dumped into this storage plant but some has been reloaded for shipment and it is difficult to ascertain what quantity is actually on hand.

**Railroad Tonnages**—Dumpings over the local piers for the past five weeks compare as follows:

| | Week Ending | | | | |
|---|---|---|---|---|---|
| Railroad | Sept. 11 | Sept. 18 | Sept. 27 | Oct. 2 | Oct. 9 |
| Norfolk & Western | 156,459 | 182,047 | 163,400 | 131,055 | 140,934 |
| Chesapeake & Ohio | 93,260 | 87,686 | 91,341 | 72,996 | 93,344 |
| Virginian | 70,855 | 59,597 | 79,176 | 59,997 | 65,150 |
| Totals | 320,574 | 329,330 | 333,917 | 264,048 | 299,428 |

## Ocean Charters, Clearances and Freights

### VESSEL CLEARANCES

The following steamers have cleared from various ports, during the week ended Oct. 9:

NORFOLK

| Vessel | Destination | Tons |
|---|---|---|
| DORIS[1] | Genoa | 2,088 |
| Goulandris[2] | Genoa | 4,688 |
| Carlo[3] | Genoa | 7,145 |
| Rollins[4] | Kingston | 1,500 |
| Bris[5] | Pernambuco | 1,630 |
| Dorothy[6] | Pernambuco | 1,225 |
| Coniston Water[2] | Civita Vecchia | 4,467 |
| Wardha[3] | Reggio | 5,500 |
| Tea[3] | Gibraltar | 7,060 |
| Acon[2] | Cristobal | 9,248 |
| Rosalia[2] | Naples | 9,059 |
| Uranus[3] | Gibraltar | 5,300 |
| Stephen[7] | Brazilian ports (Part cargo) | 990 |

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| | | |
|---|---|---|
| Ciampa[8] | Taranto | 3,760 |
| Hubert[7] | Brazilian ports | 1,928 |
| F. H. G. Dow[9] | Seville | 1,556 |
| St. Helena[8] | Spezia | 6,400 |
| Westmount[8] | Port of Spain | 2,600 |
| Lysefjord[5] | Cienfuegos | 950 |
| Vernon[8] | Santiago de Cuba | 1,000 |
| Monkstone[7] | Montevideo | 4,100 |
| Berwindvale[8] | Havana | 8,300 |

PHILADELPHIA

| | | |
|---|---|---|
| E. Randall | Fjardo | |
| Progress III | Puerto Padre | |
| Harry Morse | New Orleans | |
| Richardson[10] | Braintree | |

PHILADELPHIA—Continued

| Vessel | Destination | Tons |
|---|---|---|
| Maple Hill[10] | Salem | |
| Logan | Portsmouth | |
| Cleona | Boston | |
| Thomaston | Somerville | |
| Neshaminy | Brookline | |
| Moselem | Providence | |
| Tulpehocken | Winthrop | |
| Paxtang | Boston | |
| Tabor | Portsmouth | |
| Ashland | Portland | |
| Tohickon | Newburyport | |
| Frances Hyde | Manzanillo | 809 |
| Ulrik Holm | Puerto Barrios | 2,200 |
| William Booth | Calais | 435 |
| W. H. Summer | Cuba | 489 |
| M. P. Smith | Cay Francis | 528 |
| Anna | St. John, N. B. | 747 |
| Cumru[10] | Portland | |
| Ontelaunee | Milton | |
| Macungie | Lynn | |
| Franklin | Salem | |
| Bethayres | Newburyport | |
| Pennypack | Boston | |

BALTIMORE

| | | |
|---|---|---|
| B. Barrett | Cuba | 2,977 |
| Rocio | Argentina | 5,058 |
| Unbi Mendi | Italy | 5,563 |
| San Giuseppi | Italy | 1,68[illegible] |
| Byglana | Cuba | 3,377 |
| Hoglana | Sweden | 5,906 |
| Kanawha | Cuba | 3,000 |

[1] W. C. Atwater. [2] Pocahontas Fuel Co. [3] Flat Top Fuel Co. [4] Hasler Bros. [5] Smokeless Fuel Co. [6] Castner C. & B. [7] C. & Ohio Coal & Coke Co. [8] Berwind White. [9] C. G. Blake. [10] Phila. & Reading Coal & Iron Co.

### OCEAN CHARTERS

The following charters have been reported from various sources during the past week:

PHILADELPHIA

| Vessel | To | Tons | Rate |
|---|---|---|---|
| P. W. Sprague | Manzanillo | 709 | 3.75 |
| M. P. Smith | Cay Francis | 528 | |
| Trym | Cienfuegos | 1,138 | |
| Daleby | Queenstown | 2,353 | |
| Helvetia | Jacksonville | 800 | 1.10 |
| Augusta | Camden | 875 | 1.00 |
| U. Holm | Port Barrios | 930 | |
| Brampton | Italy | | |
| Fairfield | Charleston | 478 | 1.10 |

BALTIMORE

| Vessel | To | Tons | Rate |
|---|---|---|---|
| Alf | Bocas | 1,378 | |
| S. Giuseppe | Italy | | |

VIRGINIA

| | | | |
|---|---|---|---|
| L. V. Stoddard | Norfolk | 1,616 | |
| E.W.Murdock | Canary Is. | 1,215 | |
| Marguerite | St. John | 1,475 | |

ATLANTIC RANGE

| | | | |
|---|---|---|---|
| Muskegon | Port Militar | 2,129 | |

### OCEAN FREIGHTS

A large number of steamers for export coal were chartered during the past week. The last charters for grain to Italian ports were at $15.84 and shippers are endeavoring to secure concessions in this rate, but thus far without success. There have been no charters for Italian coal since our last report, as shippers are not inclined to meet owners' views. Coal rates to Brazil and to the Plate are very firm, and it is reported that a steamer has been chartered to load coal at Virginia for Rio at $9.60, though there are steamers willing to accept a lower figure. We understand that some remarkably high rates have been paid from Cardiff to the Plate. West Indian freights are firm and advancing.

Coal freights are quotable as follows:

| To | Rate | To | Rate |
|---|---|---|---|
| Havana | $2.50@3.00 | Bermuda | $3.00@3.25 |
| Cardenas or Sagua | 2.75@3.25 | Vera Cruz | 5.50 |
| Cienfuegos | 3.00@3.50 | Tampico | 6.50 |
| Port au Spain, Trinidad | 3.75@4.00 | Rio | 8.64@9.12 |
| St. Lucia | 3.50@3.75 | Santos | 8.64@9.12 |
| St. Thomas | 3.25@3.50 | Montevideo | 8.64@9.60 |
| Barbados | 3.75@4.00 | Buenos Aires or La Plata | 8.88@9.60 |
| Kingston | 3.00@3.25 | Rosario | 9.12@10.08 |
| Curacao | 3.25@3.50 | West Coast of Italy | 13.20@14.40 |
| Santiago | 3.25@3.50 | Barcelona | 11.52@13.20 |
| Guantanamo | 3.25@3.50 | Valparaiso or Callao | 7.50 |
| Demerara | 6.00@6.50 | Marseilles | 12.00@13.20 |

* Consignees paying dockage dues. ** Spanish dues for account. † Quotations on Plate coal by British steamers; neutral steamers are more difficult to obtain and the rates are always higher.

W. W. Battie & Co.'s Coal Trade Freight Report.

# LAKE MARKETS

## PITTSBURGH

**Demand improved on the whole, with iron and steel industry taking record tonnage. Operations 60 to 70% of capacity. Car shortages more pronounced. Prices slightly stiffer.**

There is an improved line demand, with the steel industry taking still larger tonnages than formerly, and easily making a new high record rate for coal consumption. The railroads are all busy and are consuming more coal, and are also stocking a little. Domestic demand remains relatively light but is approximately normal for the season.

Car shortages have developed on additional lines and in some cases are rather serious. Cars in themselves are not plentiful and with some apparent shortages in motive power the movement is not good. The general expectation is that there will be a severe car shortage before the close of Lake navigation. Shipments in the Lake trade continue moderate. Coal cargoes are not being eagerly solicited, as strenuous efforts are now being made to move every ton of ore possible down the Lakes before the close of navigation and many boats are going up light.

Mine operations in the Pittsburgh district continue at between 60 and 70% of capacity, probably somewhat nearer the higher figure. Prices for free coal have stiffened slightly, and while the former minima can sometimes be done, advances of 5c. are not uncommonly paid. Youghiogheny gas slack is in particular demand, at fully 60c. We quote free coal: Slack, 50@60c.; nut and slack, 90c.@$1; nut, $1@1.05; mine-run, $1.05@1.10; ¾-in., $1.15@1.20; 1¼-in., $1.25; on contract to Apr. 1: slack, 85@95c.; mine-run, $1.15; ¾-in., $1.25; 1¼-in., $1.35, per net ton at mine, Pittsburgh district.

## TORONTO

**Coal moving more freely and there are indications of a turn for the better.**

Coal has been moving more freely with the setting in of cooler weather, and the industrial outlook is showing some indications of improvement. Yards are kept well stocked against a possible shortage and dealers are advising consumers to lay in good supplies in advance, though so far comparatively few are doing so. Transportation is somewhat delayed by a shortage in cars. Steel hopper cars are about 25% short of the demand, while the gondola flat cars are unobtainable. Higher prices on all grades of soft coal are anticipated and a local advance in wholesale bituminous rates has been made.

Quotations per short ton for best grades are as follows: Retail, anthracite egg, stove and nut, $7.75; grate, $7.50; pea, $6.50. Bituminous, retail steam, $5.25; screenings, $4.25 to $4.50; domestic lump, $6; cannel, $8. Wholesale, f.o.b. cars at destination, three-quarter lump, $3.79; screenings, $3.

## BUFFALO

**Steady improvement in bituminous, though the rush is confined chiefly to the Pittsburgh market. Buffalo is handicapped by the slow Canadian demand. Anthracite moving faster.**

**Bituminous**—This market feels the general stir of business, but it is not able to come up to the level of Pittsburgh, from which some very extravagant reports are coming at present. Buffalo depends largely on the Canadian trade, which is still light and does not promise to improve much right away. The car situation is getting worse; shippers are receiving notices that they will not be furnished with more than 75% supply. The mines are also warned to send out loaded cars promptly; if any are found loaded they are now counted as part of the allotment of the day.

While the shippers still report the bituminous market as somewhat unsteady it is agreed that it improves every week. Quotations are more firm than formerly and somewhat higher on some sizes as follows:

| | Pittsburgh | Allegheny Valley | Penn. Smokeless |
|---|---|---|---|
| Lump | $2.65 | $2.45 | $2.55 |
| Three-quarter | 2.55 | 2.30 | .... |
| Mine-run | 2.45 | 2.20 | 2.30 |
| Slack | 2.15 | 2.05 | 2.30 |

These quotations are f.o.b., Buffalo freight rates, and are for short tons to all points except east of Rochester, N. Y., and Kingston, Ont., where the long ton basis prevails.

**Anthracite**—There is some stir in this market, but the consumer is not at all anxious for coal yet. Favorable reports come in from the Western trade, which is waking up to the fact that winter will soon be here. The shippers to Lake Michigan will soon find that they must pay higher La[illegible] freights if they are to get much tonnage. All the vess[illegible] now want to go to Lake Superior after the 6c. wheat freight. Even small steamers are refusing coal and going light [illegible] wheat.

The local trade has not started up much yet. The anthracite mines show increased activity. The stocking of surplus is not very general. All sellers of independent anthracite report that trade is picking up and prices are fully up to circular. Bituminous jobbers in this branch of the business are active and appear to be pushing sales in a way that the agents and salesmen of the large companies are not.

Prices of anthracite at Buffalo are per long ton, $5.60 for grate, $5.85 for egg and stove, $6.10 for chestnut and $4.30 for pea, all f.o.b. For delivery to vessels an addition of 25c. per ton is made. Prices include the Pennsylvania state tax.

## COLUMBUS

**Improvement in the domestic trade. Prices well maintained and some talk of an advance.**

Dealers are buying better since weather conditions have improved and more orders are now released. There is a generally better tone to the market and it is believed that the worst of the depression is over.

Retailers' stocks are not large and since they are having a good demand from consumers they are compelled to replenish their stocks. Most of the orders booked at this time are for immediate shipment. A number of the producers and jobbers have instructed their salesmen not to book orders at present prices beyond Oct. 15. In case an advance is made it will be on an average of 10c. on the ton.

There is a better market for the small sizes. Nut, pea and slack is especially strong and prices are advancing. In retail circles there is a good demand for the fancy grades, such as Pocahontas and West Virginia varieties. Hocking lump is now being stocked to a larger extent than formerly. Considerable attention is being given to school, public institution and municipal contracts. A number of Ohio institutions have announced that nothing but Ohio-mined coal would be bought.

Lake trade is rather quiet, although there is a fair tonnage being shipped, though a part of this is from West Virginia mines.

Steam business is strong in every department. Manufacturing is still on the upturn and as a result fuel requirements are increasing. Railroads are still storing an immense quantity of coal for the winter. Car shortage is growing more pronounced in many sections, especially on the Chesapeake & Ohio R.R. and is extending to other roads.

Prices in Ohio fields per short ton, f.o.b. mines, are as follows:

| | Hocking | Pomeroy | Eastern Ohio | Kanawha |
|---|---|---|---|---|
| Re-screened lump | $1.50 | $1.60 | | |
| Inch and a quarter | 1.40 | 1.45 | $1.30 | $1.30 |
| Three-quarter inch | 1.25 | 1.35 | | 1.25 |
| Nut | 1.15 | 1.25 | | 1.15 |
| Mine-run | 1.05 | 1.10 | 1.00 | 1.05 |
| Nut, pea and slack | .65 | .65 | .50 | .55 |
| Coarse slack | .55 | .55 | .40 | .45 |

Mines have been working at about the following precentages of full capacity:

| | Week Ended | | | | | Week Ended | | | |
|---|---|---|---|---|---|---|---|---|---|
| District | Sept. 18 | Sept. 25 | Oct. 2 | Oct. 9 | District | Sept. 18 | Sept. 25 | Oct. 2 | Oct 9 |
| Hocking | 45 | 50 | 50 | 50 | Cambridge | 45 | 45 | 45 | 50 |
| Jackson | 25 | 25 | 25 | 30 | Massillon | 45 | 45 | 45 | 55 |
| Pomeroy | 60 | 75 | 80 | 75 | Eastern O. | 70 | 75 | 80 | 80 |
| Crooksville | 40 | 40 | 40 | 45 | | | | | |
| | | | | | Average | 47 | 50 | 52 | 55 |

## CLEVELAND

**Cooler weather braces domestic trade, but jobbing business remains unchanged. Scarcity of vessel tonnage.**

Receipts were fair over Sunday, but there was no inquiry for coal. Jobbers held the prices because they cannot otherwise come out whole, but sales were made with an effort. Cold weather the last week has given the domestic trade an impetus. So much of the domestic business is hand to mouth, especially this year, that the weather has an unusual effect upon it.

The lake situation does not change. Some of the shippers are having trouble getting boats and have notified some of the vessel owners they must live up to contracts or vessels will be chartered in the open market to their accounts. This is rather extreme, but such a threat seems to be necessary to make some managers realize they have coal to carry. Freight rates higher than the contract rates of last spring have been paid to smaller ports. The larger shippers will not pay anything extra until the last two weeks of the season.

Jobbers are being quoted at the following prices, f.o.b. Cleveland per short ton:

| | Pocahontas | Youghiogheny | Fairmont | Bergholz | Ohio No. 8 |
|---|---|---|---|---|---|
| Freight rate | $1.45 | $1.00 | $1.15 | $0.70 | $0.90 |
| Lump | 3.70 | | | | |
| Lump, 6-in. | | | | 2.30 | |
| Lump, 1¼-in. | | 2.40 | | 2.10 | 2.15 |
| Lump, ¾-in. | | 2.30 | 2.05 | 2.00 | 1.95 |
| Egg | 3.70 | | | | |
| Egg, 6-in | | | | 1.90 | |
| Mine run | 2.80 | 2.15 | 1.95 | 1.85@1.90 | 1.85 |
| Slack | | 1.75@1.80 | 1.85 | 1.65 | 1.70 |

### DETROIT

**Greater regularity develops in steam trade. Cold weather strengthens market for domestic coal. Lake movement of small volume.**

**Bituminous**—Small sized orders and more renewals give an encouraging aspect to the steam trade. While the total amount of business is less than normal for this period a gradual improvement is expected from now on. Consignment coal is still plentiful but forced sales has greatly diminished and cheap offerings are few. Weather conditions are creating a greater demand for domestic coal. Retail yards seem to have considerable of a supply on hand, but renewal orders are expected soon.

**Anthracite**—Distribution of anthracite to consumers is making good headway, some retail yards finding it necessary to put additional men and teams at work. Though somewhat delayed, the outlook is for normal sales. Some difficulties and delays are reported in transportation.

**Lake Trade**—Attractive freight rates on grain and iron ore leaves few Lake freighters available for handling coal. From the present outlook, much coal will have to be shipped all rail into the Northwest.

### TOLEDO

**Car problem more serious. Lake movement continues light.**

The traffic situation is commencing to look more serious than a few weeks ago and the local trade is finding it more difficult to secure quick shipments. Indications are that this tightening will be more and more noticeable as the grain shipments increase. The Lake movement is light although quite a bit of coal is coming into the Toledo docks. The domestic trade has been strengthened recently by the cold weather.

Quotations here, f.o.b. mine, per short ton, are:

| | Pocahontas | West Virginia | Hocking | Pomeroy | Jackson | Massillon | Kentucky | Pittsburgh No. 8 |
|---|---|---|---|---|---|---|---|---|
| Lump | $2.25 | $1.40@1.85 | $1.60 | $1.65 | $2.50 | 82.50 | $1.75 | $1.25 |
| Egg | 2.25 | 1.00@1.25 | .... | .... | .... | .... | 1.25 | 1.20 |
| Mine-run | 1.40 | .85@1.00 | 1.10 | 1.10 | 2.50 | .... | .90@1.10 | 1.00 |
| Nut | .... | .90@1.15 | 1.25 | 1.25 | .... | 2.50 | .90@1.15 | .... |
| Nut, pea and slack | .... | ..... | .65 | .65 | .60 | .... | .40@ .60 | .60@ .75 |

### CINCINNATI

**Colder weather has stimulated the market and both orders and inquiries are more numerous. Shortest car supply of the season is hampering deliveries.**

A touch of winter with a trace of snow, helped to bring all classes of consumers of coal to a realization that fuel will soon be required, and the retail trade promises to be livelier from now on. The steam trade is still lagging somewhat, due to relative inactivity in many manufacturing lines rather than to disinclination to buy. Larger industrial consumers have contracted for their requirements, and while deliveries have been held off, indications are that they will be required from now on in normal quantities.

The chief trouble with operators just now is in the short car supply, conditions on one or two lines last week being the worst of the season. Cars were almost entirely lacking, and coming at a time when orders are picking up for the first time in a seasonable fashion, the shortage was especially irritating. Prices as a rule are firm, although there is some cheap coal being offered here and there.

### LOUISVILLE

**Car shortage limiting outputs and retailers beginning to consider their stocks.**

Retail dealers, as a rule, have not been buying as much as usual. The car shortage is limiting the outputs of most of the mines and the thoughtful retailers are taking this into consideration. The movement generally has been somewhat better during the past week and prospects are good.

Prices per long ton basis, f.o.b. mines, are around $1.75 for Eastern Kentucky block and $1.15 for the Western Kentucky lump; nut and slack in Eastern Kentuckies sell at from 50 to 65c. for the best grades, with the lower grades in almost a level with Western Kentucky pea and slack, on which the buyers are about making their own prices.

## COKE

### CONNELLSVILLE

**Furnace coke contracting movement continues, with 125,000 tons monthly closed thus far. Slightly lower prices for year than for half-year. Spot coke stiffer. Production and shipments slightly increased.**

Additional contracts for furnace coke for 1916 have been closed. Typical transactions are 10,000 tons a month over 1916 at a sliding scale, with 20% as much advance in coke as in basic pig iron, valley, making coke $2.15 at the present market of $15, $2.35 on $16 pig iron and so on, and a contract for about 18,000 tons a month over 1916 at a flat price of about $2.25. Coke contracts placed thus far in this movement, covering four or five weeks, total about 125,000 tons a month, partly for the first-half and partly for the whole year. Sliding scale contracts are made on the same basis whether for the long or short period, while in the case of flat prices slightly lower figures are quoted for the whole year than the half-year. Operators are doubtful whether the coke market will be as strong in the second-half as the first-half as so many by-product ovens are to be completed by next June, and thus the disposition is to quote a shade lower for the longer delivery.

Prompt furnace coke has advanced again. There were no sales last week to speak of, with practically no offerings and no urgent inquiry. This week opened with quotations higher on the strength of there being no accumulations, rather than on the basis of heavier demand. Foundry coke demand is moderate. We now quote: Furnace coke, prompt, $1.85@1.90; November and December, $2; first-half, $2.35@2.50; year 1916, $2.25@2.35; prompt foundry, $2.30@2.60; contract foundry, $2.40@2.60, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Oct. 2 at 397,589 tons, an increase of 8,705 tons, and shipments at 395,243 tons, an increase of 8,225 tons.

**Buffalo**—There is an effort on the part of producers to make a sharp advance in the price of coke and quite a large part of them have withdrawn all quotations, after asking about $4.40 for foundry. Jobbers are doubtful about it and are not inclined to pay the advance, maintaining that $4.40 is sufficient for best Connellsville 72-hr. foundry, with stock coke $3.45.

**Chicago**—The Chicago coke market continues to harden. Connellsville quotations are higher. The demand for by-product foundry has been very strong, and a better tone is seen in gas-house. Increased orders have been received for byproduct domestic sizes. Prices f.o.b. cars Chicago per net ton of 2,000 lb. are as follows: Byproduct foundry, $4.90@5.10; byproduct domestic, $4.85@4.95; Connellsville, $4.85@5; Wise County, $4.85@5; gas coke, $3.90@4.

## MIDDLE WESTERN

### GENERAL REVIEW

**Chilly weather makes improvement more marked. Domestic business snappy. Steam coals stronger. Anthracite demand expanding.**

The past week has been characterized by a steady and broadening demand in all branches of trade. With temperatures below normal for this time of year, the close of last week has seen a real snap to domestic business and more active buying at firm prices. Wholesalers report orders increasing day by day, and are very cheerful over the outlook. The forward movement in retail buying has been conspicuous, and is welcomed by local yards. A number of operators report unfilled orders on hand for domestic coals and certain other sizes, which augers well for the future now that chilly weather has appeared.

Increased demand has led to some stiffening of prices, particularly Indiana and Springfield domestic sizes; No. 2 Franklin County nut is being sold at higher figures and Southern Illinois No. 1 washed is in strong demand at firm prices. The advance in freight rates on some Western coals has slowed up orders slightly, but no particularly harmful effects have been noticed as yet. Screenings occupy about the same position as last week. A considerable volume of coal is still moving to Northwestern points notwithstanding the rate advances. Rush orders have been received from many interior points owing to frosty weather. The price situation is generally strong, and in this respect Eastern coals have benefited greatly.

## CHICAGO

**Domestic trade very strong. More operations resuming production. Car shortage developing a scarcity of Eastern coals. Railroads continue heavy buyers. Anthracite picking up rapidly.**

Franklin and Williamson County coals remain stationary in price, but it is expected that an advance will occur about the middle of the month. Egg is moving better and steam sizes are held up remarkably well. Lump and No. 1 nut are held firmly at $1.75, and screenings are slightly stronger, averaging about 55c. The mines are averaging from four to five days per week in running time.

The domestic demand for Springfield coal has improved considerably, and orders during the last week have been in large volume; $1.75 is the ruling figure for domestic lump. Screenings are showing more activity at higher prices, and average 50c.

A heavier demand for Indiana domestic coal this week has been a prominent feature. Steam coals are not so strong but are improving; screenings, however, are well maintained in price. Operators are preparing for a month of great activity, and are making special efforts to keep retailers fully supplied. Some of the larger Indiana mines which have not yet resumed operations are expected to begin hoisting coal very shortly. No. 4 screenings are selling around 70c. a ton, with Nos. 5 and 6 about 10c. lower; retailers generally have advanced the price of all domestic coals 25c. per ton.

Pennsylvania smokeless shipments are light because of car shortages. The colder weather has created active distribution of smokeless coals while the dealers' supplies are beginning to melt away, and their orders have been more frequent and urgent; there is no free coal here at the present time. The situation in smokeless is more satisfactory than for several weeks past; prices are stiffer and very little lump and egg is being sold under $2.10. Prices are stronger for splint; the better grades are selling at $1.50, and high grade nut and slack has gone into northern Indiana at from 60c. to 65c. Manufacturing is gradually becoming stronger, and the splint operators think that fine coal will be at a much higher level within a short time.

The Hocking circular will probably advance shortly because of the firm domestic demand and active buying for stocking purposes. Hocking lump is being stocked heavily and railroads are continuing to absorb storage coal. Some dealers complain that there is little Hocking coal of better quality available.

The Kentucky situation has bettered with stronger prices for all grades except steam sizes, which are still comparatively slow. Railroads are reported to be taking maximum tonnages from Kentucky mines.

Retail dealers are making more progress with anthracite deliveries, and there is lately a better tone generally in this branch. It is felt that the reports of reduced production at the mines has had some effect in stimulating orders. Prices are about at the same level of last week.

Quotations in the Chicago market are as follows:

| | Williamson and Franklin Co. | Springfield | Sullivan | Clinton | Knox and Greene Cos. |
|---|---|---|---|---|---|
| Lump | $1.75 | $1.65@1.75 | $1.50@1.70 | $1.60@1.75 | $1.40@1.60 |
| Steam lump | .... | 1.25@1.30 | 1.20@1.30 | 1.15@1.25 | 1.25 |
| 2½ and 3-in. lump | .... | .... | 1.40@1.50 | .... | 1.30@1.40 |
| 1¼-in. lump | .... | .... | 1.25@1.30 | 1.15@1.25 | .... |
| Egg | 1.65@1.75 | 1.50@1.60 | 1.10@1.20 | 1.20@1.35 | 1.15@1.25 |
| Nut | .... | 1.65 | .95@1.05 | 1.15@1.25 | 1.00@1.05 |
| No. 1 washed | 1.75 | .... | 1.50@1.60 | .... | .... |
| No. 2 washed | 1.40@1.50 | .... | 1.40 | .... | .... |
| No. 1 nut | 1.75 | .... | .... | .... | .... |
| No. 2 nut | 1.65@1.75 | .... | .... | .... | .... |
| Mine-run | 1.10@1.25 | 1.05@1.15 | .85@.95 | .95@1.05 | .90@1.05 |
| Screenings | .50@.65 | .40@.50 | .40@.50 | .55@.65 | .75@.80 |

| | Harrisburg & Saline Co. | E. Kentucky | Pocah. & W.Va.Smok'l. | Penna. Smokeless | Hocking |
|---|---|---|---|---|---|
| Lump | $1.60@1.75 | $1.75@2.25 | $2.00@2.25 | $1.75@1.85 | $1.50@1.75 |
| 1¼-in. lump | 1.25@1.30 | .... | .... | 1.25@1.40 | 1.40@1.50 |
| Egg | 1.60@1.75 | 1.25@1.75 | 2.00@2.25 | 1.75@1.85 | 1.05@1.10 |
| Nut | 1.40@1.50 | 1.10@1.35 | .... | .... | .... |
| No. 1 nut | 1.60@1.75 | .... | .... | .... | .... |
| No. 2 nut | 1.50 | .... | .... | .... | .... |
| Mine-run | 1.10@1.25 | .... | 1.40 | 1.25@1.40 | 1.10@1.15 |
| Screenings | .50@.65 | .40@.70 | .... | .... | .50@.70 |

West Virginia splint, 3-in. lump, 1.35@1.50; 1¼-in. lump, $1.15@1.25.

## DULUTH

**Shipments out the heaviest of any week this season. Receipts light, some docks receiving no cargoes. Anthracite normal.**

The past week has seen the heaviest shipments made by dock companies so far this season. The weather has been wet and cold, so that the retailers witnessed a real spurt and the wholesalers have kept everything moving, in order to take care of the requirements of the domestic trade. Shipments for the railroads are off a little, the wet weather having interfered with the grain movement, shipments of which are reported somewhat delayed. Receipts continue light, a number of the docks not having received a cargo during the past week. No change in prices has been announced since last week and the circular appears to be fairly well maintained, although in a number of instances reports are current that quotations have been made at a little below circular.

Quotations per short ton, f.o.b. cars Duluth, are as follows:

| | Yough. | Splint | Hock. | Smokeless | Elkhorn |
|---|---|---|---|---|---|
| Lump | $3.40 | $3.40 | $3.40 | $4.75 | $3.75 |
| Dock-run | 3.10 | 3.10 | 3.05 | 3.25 | 3.25 |
| Stove or nut | 3.40 | 3.40 | 3.40 | 4.75 | 3.65 |
| Screenings | 2.40 | 2.40 | 2.25 | 2.75 | 2.40 |

The demand for anthracite for domestic purposes is very good and the shipments continue up to the average of other years. Many householders are now putting in their supply of fuel for the winter and the retail business in this class of trade is quite brisk. Prices f.o.b. cars, docks, per short ton, are as follows: Egg and stove, $6.85; nut, $7.10; pea, $5.55, and buckwheat, $4.

## INDIANAPOLIS

**Business fairly lively, with better prices for domestic lump and screenings. Retailers busy and have advanced prices. Railroads buying more.**

Indiana coal mines are now going at a seasonable pace and the demand for domestic lump is urgent enough to stiffen the price, with sales at $1.50 for 2½-in. and $1.60 for 4-in., both No. 4. The price of screenings has also improved and operators are getting 60 to 65c. f.o.b. mines. Mine-run is selling at $1.15 to $1.20. The mines have just managed to get enough cars to keep coal going to the retailers, who are just now doing a rushing business.

The railroads are also doing better buying and seem to be laying by coal, as far as the supply of cars will permit. The industrial demand continues its slow but gradual improvement. Not all the mines of the state are in operation but the indications are that that condition will exist in November. Retailers have made the second advance in prices this season raising them 25c. on Indiana and Pocahontas coals. The new schedule is:

| | | | |
|---|---|---|---|
| Linton No. 4 forked | $3.25 | Pocahontas forked lump | $6.00 |
| Indiana lump forked | 3.00 | Pocahontas shoveled lump | 5.50 |
| Indiana lump and egg, screened | 2.75 | Pocahontas mine run | 4.50 |
| Kanawha lump, forked | 4.25 | Pocahontas, nut and slack | 3.75 |
| Ohio Hocking, lump | 4.25 | Anthracite, chestnut | 8.25 |
| Ohio Hocking, wash egg | 4.50 | Anthracite, stove and egg | 8.00 |
| Kentucky lump | 4.50 | Anthracite, grate | 7.75 |
| Ohio Jackson lump, forked | 5.00 | Connellsville coke | 6.00 |
| Blossburg smithing | 5.50 | Indianapolis by-product coke (all sizes) | 6.00 |
| Cannel lump | 6.00 | | |

## ST. LOUIS

**Market strengthens up under stimulus of colder weather. Generally good demand and prices up slightly.**

The week opened quietly, but the movement was stimulated the latter part by a change in the weather and the market strengthened up considerably. There was a good demand for all sizes except screenings. There was an advance of 5c. on inner group lump grades and on outer group prices there was only a minor change. Screenings were stationary. Country orders for standard grades improved. Still greater improvement in the demand for domestic sizes is expected. There is practically no change in the steam situation.

Quotations f.o.b. mines during the past week have ranged on the following basis per short ton:

| | Frk. Co. | Wmsn. Co. | Staunton | Standard |
|---|---|---|---|---|
| 6-in. lump | $1.50@1.75 | $1.50@1.75 | $1.25@1.35 | $1.20 |
| 2-in. lump | .... | .... | 1.15@1.20 | 1.05 |
| 3x6 egg | 1.35@1.75 | 1.35@1.65 | ..... | 1.00 |
| 2x6 egg | ..... | ..... | ..... | .85 |
| No. 1 nut | 1.50@1.75 | 1.50@1.75 | ..... | .80 |
| No. 2 nut | 1.40@1.50 | 1.40@1.50 | ..... | .55 |
| No. 1 washed | ..... | 1.65 | 1.50 | .... |
| No. 2 washed | ..... | 1.25 | 1.10@1.25 | .... |
| No. 3 washed | ..... | 1.25 | 1.10@1.25 | .... |
| No. 4 washed | ..... | 1.20 | 1.05 | .... |
| No. 5 washed | ..... | .60@.70 | .50@.60 | .... |
| Screenings | .40@.50 | .40@.50 | .35@.40 | .25 |

## KANSAS CITY

**Prices increased. Shipments delayed. Readjustments of freight rates causing some confusion. Outlook encouraging.**

Retail prices were increased 25c. a ton on Oct. 1. The rise was somewhat unexpected, though it was generally anticipated that by Nov. 1 prices would be increased 25c. Wholesale prices have advanced irregularly on different kinds, from 10c. to 25c. a ton, some grades not being affected. Wholesale dealers report the demand good and the supply still seriously retarded on account of the recent heavy rains. Railroads are short of cars. On interstate shipments, freight rates are up 10c. and there is some confusion as to what constitutes inter-

state shipments so that dealers have to refer all freight questions to their traffic departments. Coal men generally are beginning to congratulate themselves on what looks like the beginning of a favorable season.

Ruling prices, per short ton, f.o.b. mines, with freight rate to Kansas City, are:

| | | Freight | | | Freight |
|---|---|---|---|---|---|
| Cherokee lump | $2.25 | $0.90 | Farmer's Block (Red Label) | $2.65 | $0.60 |
| Cherokee mine run | 1.85 | .90 | Morning Glory (Higginsville) | 2.35 | .60 |
| Cherokee nut | 2.00 | .80 | Arkansas Semi-Anthracite | 3.00 | 2.10 |
| Cherokee mill | 1.60 | .75 | Arkansas Anthracite sizes | 4.10 | 2.20 |
| Cherokee slack | 1.40 | .75 | Arkansas Anthracite lump | 3.85 | 2.20 |
| Lexington block | 2.10 | .40 | Pennsylvania Anthracite chestnut | 7.10 | 2.60 |
| Parlor block | 2.10-2.25 | .40 | Pennsylvania egg | 6.85 | 2.60 |
| Richmond | 2.10 | .40 | Pennsylvania grate | 6.60 | 2.60 |
| Waverly lump | 2.10 | .40 | | | |
| Waverly nut | 2.10 | .40 | | | |
| Novinger No. 1 lump | 2.10 | .60 | | | |
| Novinger Co. C | 2.00 | .60 | | | |
| Novinger nut | 1.85 | .60 | | | |

# PRODUCTION AND TRANSPORTATION STATISTICS

## ANTHRACITE SHIPMENTS

Anthracite shipments for September and the first nine months of 1914-15 were as follows:

| | September | | 9 Months | |
|---|---|---|---|---|
| | 1915 | 1914 | 1915 | 1914 |
| Phila. & Reading | 895,718 | 1,101,296 | 7,995,805 | 8,869,552 |
| Lehigh Valley | 1,093,283 | 1,290,327 | 9,447,463 | 9,550,799 |
| Cent. R.R. of N.J. | 626,237 | 824,604 | 5,636,799 | 6,560,049 |
| Del. Lack. & West. | 820,440 | 893,098 | 6,791,191 | 7,138,223 |
| Del. & Hudson | 737,592 | 647,974 | 5,970,324 | 5,354,593 |
| Pennsylvania | 467,587 | 575,898 | 4,233,909 | 4,697,325 |
| Erie | 718,751 | 727,950 | 5,816,660 | 6,169,528 |
| Ont. & Western | 159,163 | 185,045 | 1,486,960 | 1,727,512 |
| | 5,518,771 | 6,246,192 | 47,379,111 | 50,067,581 |

Stocks at Tidewater Sept. 31 were 633,338 tons.

## SOUTHWESTERN TONNAGE

The following is a comparative statement of the Southwestern tonnage for May and the preceding three months:

| | April | | May | | June | |
|---|---|---|---|---|---|---|
| State | 1914 | 1915 | 1914 | 1915 | 1914 | 1915 |
| Missouri | 179,723 | 1[illegible]6,032 | 165,394 | 161,575 | 185,731 | 166,885 |
| Kansas | 378,192 | 410,565 | 370,097 | 351,264 | 490,561 | 449,803 |
| Arkansas | 87,002 | 80,118 | 95,749 | 71,003 | 133,350 | 71,498 |
| Oklahoma | 239,443 | 181,873 | 241,80 | 173,821 | 273,692 | 201,126 |
| Totals | 884,360 | 868,588 | 872,421 | 760,683 | 1,083,334 | 889,312 |

## SAULT STE. MARIE CANALS

Anthracite shipments through St. Marie canals in September were: 174,560 short tons of anthracite which is 11,650 tons more than in the same month last year but 126,973 tons less than in September, 1913. Bituminous shipments were 1,553,426 short tons which is 210,166 tons less than during the same month a year ago and 1,503,920 tons less than in September, 1913.

## NORFOLK & WESTERN RY.

The following is a statement of coal handled by the N. & W. Ry. during August and the past four months in short tons:

| | May | June | July | August |
|---|---|---|---|---|
| Pocahontas Field | 1,259,992 | 1,493,776 | 1,648,551 | 1,721,573 |
| Tug River District | 322,881 | 348,737 | 361,454 | 337,585 |
| Thacker District | 278,775 | 238,688 | 265,743 | 227,312 |
| Kenova District | 90,642 | 81,794 | 80,009 | 80,152 |
| Clinch Valley District | 144,576 | 155,689 | 146,911 | 151,804 |
| Other N. & W. Territory | 2,323 | 3,418 | 2,651 | 4,239 |
| Total N. & W. Fields | 2,099,189 | 2,322,102 | 2,505,319 | 2,522,665 |
| Williamson & Pond Creek | 84,086 | 75,573 | 86,949 | 89,785 |
| All other railroads | 251,339 | 282,790 | 262,177 | 348,124 |
| Grand total | 2,434,614 | 2,680,465 | 2,854,445 | 3,005,618 |

Distribution of shipments for June and July follow:

| | June | | | July | | |
|---|---|---|---|---|---|---|
| | Shipped | Tipple | Total | Shipped | Tipple | Total |
| N. & W. Fields | 1,375,303 | 11,153 | 1,386,456 | 1,519,769 | 12,233 | 1,532,002 |
| Pocahontas | 1,375,303 | 11,153 | 1,386,456 | 361,454 | 2,347 | 363,801 |
| Tug River | 348,737 | 2,370 | 351,107 | 234,568 | 6,960 | 241,528 |
| Thacker | 209,216 | 6,713 | 215,929 | 80,009 | 8,076 | 88,085 |
| Kenova | 81,794 | 8,643 | 90,437 | 80,009 | 8,076 | 88,085 |
| Total | 2,015,050 | 28,879 | 2,043,929 | 2,195,800 | 29,616 | 2,225,416 |

Shipments of coke entirely from the Pocahontas field amounted to 58,507 tons in July and 66,095 in June.

## THE CAR SITUATION

The American Railway Association reports a surplus of 563 coal and gondola cars and a shortage of 3,251 on Oct. 1. There was a decrease in the shortage of coal cars in the Eastern group. The gross surplus of all kinds of cars on Oct. 1 was 88,061, which compares with 191,309 on Sept. 1, and 133,382 on Oct. 1 of last year. The gross shortage of all kinds of equipment on the first of the current month was 9,762, as compared with 6,300 on Sept. 1, and 2,355 on Oct. 1 of last year.

## BALTIMORE & OHIO

The following is a statement of coal and coke tonnage moved over this system and affiliated lines during August and the previous two months:

| | June | | July | | August | |
|---|---|---|---|---|---|---|
| | 1915 | 1914 | 1915 | 1914 | 1915 | 1914 |
| Coal | 2,883,959 | 2,380,795 | 2,887,918 | 2,594,407 | 3,009,028 | 2,769,45 |
| Coke | 329,130 | 298,237 | 344,557 | 255,650 | 345,258 | 242,28 |
| Total | 3,213,089 | 2,679,023 | 3,232,475 | 2,850,057 | 3,354,286 | 3,011,73 |

## CHICAGO LAKE ARRIVALS

Lake shipments to Chicago for September and the season to date this year and last year were as follows:

| | 1915 | | 1914 | |
|---|---|---|---|---|
| From | Hard | Soft | Hard | Soft |
| Buffalo | 90,364 | 24,281 | 84,160 | x |
| Oswego | 22,488 | x | 20,558 | x |
| Toledo | x | 30,749 | x | 40,778 |
| Cleveland | x | 53,730 | x | 8,132 |
| Erie | 11,326 | x | x | x |
| Sandusky | x | 8,500 | x | 19,428 |
| Ashtabula | x | 8,167 | x | 14,665 |
| Lorraine | x | 9,500 | x | x |
| Conneaut | x | 9,050 | x | x |
| Fairport | x | 7,932 | x | x |
| Month's total | 124,178 | 149,909 | 104,718 | 83,003 |
| Season's total | 596,644 | 520,465 | 532,377 | 534,208 |

# FOREIGN MARKETS

## GREAT BRITAIN

**Oct. 1**—Tonnage conditions are worse than ever from the exporters' point of view as the result of the withdrawal of Greek tonnage. Stocks are now excessive and colliery owners are offering supplies on very cheap terms for early delivery. Quotations are nominally as follow:

| | | | |
|---|---|---|---|
| Best Welsh steam | Nominal | Best Monmouthshires | $4.80 |
| Best seconds | Nominal | Seconds | 4.32 |
| Seconds | $4.80 | Best Cardiff smalls | 3.36 |
| Best dry coals | 5.76 | Cargo smalls | 2.16 |

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

**Freights**—Chartering is very restricted and rates continue their upward course. For Islands and South America there is no business passing at present. Rates are nominally as follows:

| | | | | | |
|---|---|---|---|---|---|
| Gibraltar | $6.00 | Naples | $9.60 | St. Vincent | $5.28 |
| Marseilles | 9.65 | Alexandria | 10.80 | Rio de Janeiro | 6.72 |
| Algiers | 5.98 | Port Said | 10.80 | Monte Video | 6.96 |
| Genoa | 9.60 | Las Palmas | 5.04 | Buenos Aires | 7.20 |

**Exports**—British exports for August and the first eight months of the past three years were as follows:

| | August | | | Eight Months | | |
|---|---|---|---|---|---|---|
| To | 1913 | 1914 | 1915 | 1913 | 1914 | 1915 |
| Russia | 769,794 | 169,353 | 5,923 | 3,794,188 | 3,049,527 | 35,495 |
| Sweden | 379,475 | 198,347 | 135,875 | 2,880,837 | 2,421,789 | 1,895,325 |
| Norway | 154,887 | 253,467 | 269,812 | 1,513,688 | 1,673,336 | 1,872,214 |
| Denmark | 248,746 | 243,019 | 320,754 | 1,937,492 | 1,861,470 | 2,231,186 |
| Germany | 798,177 | 132,026 | ..... | 5,950,248 | 5,256,765 | ..... |
| Netherlands | 168,862 | 165,296 | 212,381 | 1,389,990 | 1,181,071 | 1,154,243 |
| Belgium | 148,132 | 31,727 | ..... | 1,382,186 | 1,039,985 | ..... |
| France | 946,378 | 562,783 | 1,542,530 | 8,526,921 | 8,471,077 | 11,537,001 |
| Portugal[1] | 95,924 | 77,729 | 71,117 | 929,284 | 836,009 | 690,656 |
| Spain[4] | 259,847 | 172,578 | 162,800 | 2,474,504 | 2,231,177 | 1,396,077 |
| Italy | 665,618 | 444,779 | 419,310 | 6,339,031 | 5,859,577 | 3,844,360 |
| Aus. Hung. | 64,286 | 17,602 | ..... | 742,646 | 564,362 | ..... |
| Greece | 36,080 | 29,353 | 9,819 | 431,160 | 470,484 | 273,198 |
| Roumania | 23,283 | 14,437 | ..... | 119,414 | 218,218 | ..... |
| Turkey | 24,787 | 41,456 | 3,767 | 133,453 | 417,437 | 10,324 |
| Algeria | 116,754 | 28,647 | 56,083 | 885,736 | 740,894 | 634,588 |
| Portuguese[5] | 13,390 | 15,013 | 8,681 | 171,458 | 115,462 | 145,017 |
| Chile | 21,039 | 17,720 | 2,611 | 430,437 | 352,351 | 38,384 |
| Brazil | 111,504 | 48,983 | 52,429 | 1,286,853 | 907,090 | 412,331 |
| Uruguay | 72,006 | 39,103 | 19,124 | 502,500 | 461,656 | 230,238 |
| Argentine | 290,741 | 98,344 | 130,576 | 2,458,161 | 2,209,706 | 1,156,992 |
| Channel Is. | 16,004 | 11,354 | 12,998 | 107,324 | 107,308 | 85,620 |
| Gibraltar | 29,161 | 15,544 | 39,769 | 239,851 | 214,759 | 242,095 |
| Malta | 39,292 | 19,418 | 9,230 | 470,112 | 297,392 | 108,567 |
| Egypt[3] | 196,796 | 161,645 | 140,462 | 2,000,998 | 2,060,711 | 944,435 |
| Aden[3] | 17,684 | ..... | ..... | 104,748 | 96,725 | 105,794 |
| India | 10,057 | 1,646 | 5 | 117,005 | 118,039 | 18,080 |
| Ceylon | 7,037 | 5,232 | ..... | 148,757 | 205,068 | 38,730 |
| Miscell'ous | 93,421 | 54,141 | 24,416 | 851,626 | 817,716 | 421,229 |
| Coke | 113,423 | 68,498 | 89,574 | 712,698 | 694,061 | 576,218 |
| Briquettes | 140,278 | 70,159 | 113,748 | 1,363,324 | 1,324,937 | 864,503 |
| Total | 6,072,863 | 3,209,399 | 3,853,794 | 50,396,630 | 46,276,159 | 30,962,900 |
| Bunker | 1,749,847 | 1,147,437 | 1,158,729 | 13,720,560 | 13,249,027 | 9,657,927 |

[1] Includes Azores and Madeira. [3] Including Anglo-Egyptian Sudan. [3] And dependencies. [4] And Canaries. [5] West Africa.

Note—The figures in the above table do not include Admiralty and certain other shipments.

# Coal Contracts Pending

*The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.*

✚Indicates contracts regarding which official information has been received.

## Supplemental Notes

**Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.**

**No. 918—Kansas City, Mo.**—This contract (Vol. 7, p. 1,127, Vol. 8, p. 115), which provides for furnishing the Fire and Water Board with approximately 20,000 tons of coal, was awarded to the Central Coal & Coke Co., but the award was later cancelled by the City Council. The Auditing Committee reported that the bid of the Cherokee Fuel Co. averaged $2.45 per ton, as compared with $2.48 for the Central Co. On two grades the Central Co. was 10c. a ton higher than the Cherokee Co., 9c. higher on one grade, and on the two other grades 10c. lower. Owing to the general dissatisfaction with the results obtained it has been recommended that bids be advertised for again and no grades specified except those used by the city. Address Pur. Agt. C. W. Lovelace, Kansas City Municipal Water and Light Dept., Kansas City, Mo.

**1003—Kansas City, Mo.**—The purchases on this contract (p. 77), which provides for the fuel requirements of the Wesley Hospital, will be confined to the open market instead of covered by a contract as previously noted. Address Board of Directors, Wesley Hospital, Kansas City, Mo.

**1161—Colorado Springs, Colo.**—All the bids on this contract (p. 199), which provides for furnishing the local Board of Education with approximately 3,000 tons of mine-run lignite coal, have been rejected. Address Board of Education, D. E. Graff Bldg., Colorado Springs, Colo.

**1262.—Des Moines, Iowa**—It is reported that this contract (pp. 324, 489), which provides for furnishing the School Board with approximately 8,000 tons of steam coal, will not be negotiated for perhaps two months. The board is taking advantage of the depressed condition of the trade to make their current purchases in the open market. Tests of various coals are being conducted. Address Secy. A. L. Clinite, Bd. of Edu., Des Moines, Iowa.

**1438—New Orleans, La.**—This contract (p. 490), which provides for furnishing the Interstate Bank & Trust Co. with approximately 200 tons of bituminous coal, will be awarded some time during the current month. Address Pur. Agt. J. W. Billingsley, Interstate Trust & Banking Co., New Orleans, La.

**1441—New Orleans, La.**—We are informed that purchases on this contract (pp. 490, 616), which provides for furnishing New Orleans Cold Storage & Warehouse Co. with approximately 3500 tons of coal, will be confined to the open market. The old contract expired at the end of September and the company has since been trying out various coals. Address Purchasing Agent, New Orleans Cold Storage & Warehouse Co., Gainnie and Front Streets, New Orleans, La.

**1447—New Orleans, La.**—This contract (p. 490), which provides for furnishing the Jacob Candy Co. with approximately 400 tons of Pratt lump coal will not be negotiated this year. Address Pres. Mose Jacobs, Jacobs Candy Co., 823 Carondelet St., New Orleans, La.

**1450—Detroit, Mich.**—This contract (p. 490), which provides for furnishing Wayne County with approximately 2,500 tons of bituminous three-quarter lump coal, will probably be awarded to the P. Koenig Coal Co. of Detroit, at an advance of 10c. per ton on the old contract which this company also had. Bids guaranteeing a B.t.u. value of 14,000 were submitted as follows: P. Koenig Coal Co., Meadbrook nut, $2.80; United Fuel and Supply Co., Richwood nut, Red Jacket mine, Mattewan, W. Va., $3.20; Smithers Creek nut and slack, W. R. Johnson Coal Co., Oakland mine, Smithers, W. Va., $2.65; R. L. Aylward, Island Creek lump, Holden, W. Va., $3.25; Blue Gem, washed pea, Packard, Ky., $2.90; Kentucky nut, pea and slack, Auxner, Ky., $2.70; Island Creek nut, pea and slack, Holden, W. Va., $2.75; anthracite chestnut, Pittston, Penn., $7.50, with stove and egg, $7.25; Parker Bros. Co., Ltd., White Star nut, Merrimac, W. Va., $3.25, anthracite, chestnut, Scranton, $7.25. Address Secy. William Gutman, Bd. of Audrs., Wayne County, Detroit, Mich.

**✚1453—Trinidad, Colo.**—All the bids on this contract (p. 530), which provides for furnishing the local School Board with approximately 700 tons of mine-run and slack coal, have been rejected, and purchases will probably be confined to the open market. Address Secy. R. S. Gregory, School Bd. Dist. No. 1, Trinidad, Colo.

**1474—Salt Lake City, Utah**—Bids have been received on this contract (p. 531), which provides for furnishing the University of Utah with approximately 1,500 tons of screened slack coal as follows: C. S. Martin Coal Co., $3.25; Bamberger Coal Co., $3.25; Central Coal and Coke Co., $3.25; Woodruff-Sheets-Morris Coal Co., $3.25; Jeremy Fuel and Grain Co., $3.25; Federal Coal Co., $3.25; Citizens Coal Co., $3.25; Fischer-Kittle Coal Co., $3.25. Most bidders offered to furnish several varieties of coal and the matter has been referred to the technical staff of the University to determine which will be the most economical bid. Address University of Utah, Salt Lake City, Utah.

**1515—Saratoga Springs, N. Y.**—Bids have been received on this contract (p. 577), which provides for furnishing the City Hall with 200 tons of grate or egg coal as follows: Saratoga Coal Co., egg, $6.90; grate, $6.37. Independence Coal Co., egg, $6.70; grate, $6.50. G. N. Montange & Son, egg, $6.55; grate, $6.30. Address Comr. of Accounts, M. J. Mulqueen, City Hall, Saratoga Springs, N. Y.

**✚1516—Philadelphia, Penn.**—The lowest bids on this contract (p. 577), which provides for the deficiency requirements to fill out the supply for different city departments during the current year were as follows: Philadelphia & Reading Coal and Iron Co., (pea coal); Belmont Pumping Station, 1,500 tons at $3.48; Queen Lane Filters, 100 tons at $3.85; Emmons Coal Mining Co., pea coal, Belmont Filters, 100 tons at $4.10; buckwheat, Queen Lane Pumping Station, 3,400 tons at $2.68; (buckwheat), Roxborough Auxiliary, 500 tons at $3.09. Rogers-Corr Coal Co. (bituminous), Lardner's Point, 6,400 tons of bituminous at $2.64 f.o.b. houses, or $2.49 alongside; City Hall (buckwheat), $3.74 per ton. All prices given are on a delivered basis except where otherwise noted. Address Dir. Herman Loeb, Dept. of Supplies, Philadelphia, Penn.

## New Business

**1550—South Fork, Penn.**—The local School Board will receive bids during the current month for furnishing and delivering coal to the school buildings as may be required during the ensuing year. Bids are requested on coal f.o.b. the P. R.R. Freight Station, and also for hauling same to the school buildings. Address Secy. John C. Penrod, School Bd., South Fork, Penn.

**1551—East St. Louis, Ill.**—Swift & Co., packers of this place, will receive bids during the current month for furnishing their annual coal requirements involving three or four carloads of screenings per day. The company has been purchasing in the open market for several months. Address Pur. Agt. H. C. Higgins, Swift & Co., National Stock Yards, Ill.

**1552—Larksville, Penn.**—The local School Board received bids until Oct. 15 for furnishing anthracite nut and pea coal to the various local school buildings, as may be required during the ensuing year. Address Secy. Thos. Heffernan, Bd. of Edu., Larksville, Penn.

**1553—Westfield, Mass.**—The Horse Whip Co. at this place usually contracts for their fuel requirements some time during the fall. They require about 30 tons Nov. 1, Jan. 1 and Mar. 1. They use the best grade Sonman coal. Address Treas. C. J. Bradley, Horse Whip Co., Westfield, Mass.

**1554—Salem, N. J.**—The county government received sealed bids until Oct. 13 for furnishing approximately 200 tons of bituminous coal to the local county buildings. Address Clk. I. C. Smashey, Salem, N. J.

**1555—McKees Rocks, Penn.**—The Stowe township school district will receive bids until Oct. 30 for furnishing 1¼-in. soft coal during the ensuing year. Address Secy. H. E. Emeigh, 907 Russellwood Ave., McKees Rocks, Penn.

**1556—Youngstown, Ohio**—The Mahoning County Commissioners will receive bids until 10 a.m., Nov. 1, for furnishing mine-run and three-quarter inch screened coal as may be required at the Court House and Jail during the ensuing year. All bidders will be required to deposit a certified check for $100, guaranteeing the faithful performance of the contract. Address Clk. Frank H. Vogan, Mahoning County Comrs., Youngstown, Ohio.

**1557—East St. Louis, Ill.**—Morse & Co., packers at this place, who have been confining their purchases to the open market since their contract expired in last April, will contract again about the middle of the current month for their requirements, involving three or four cars of screenings per day. Address Pur. Agt. L. Chakes, Morris & Co., National Stock Yards, Ill.

**1558—California, Penn.**—The California School Board is negotiating for approximately 2,000 bu. of coal for delivery during the coming season. Address Secy. W. J. Weaver, California School Bd., California, Penn.

**1559—Pine City, Minn.**—The Pine County Board of Commissioners will receive bids until noon, Oct. 18, for furnishing Pocahontas and Youghiougheny or white ash splint coal, as may be required at the Court House and County Poor Farm during the coming year. Address County Audr. W. H. Hamlin, Pine City, Minn.

**1560—Peabody, Mass.**—Sealed bids were received by the Overseers of the Poor until 5 p.m., Oct. 13, for furnishing nut and furnace coal for the City Almshouse during the ensuing year. Address Chn. Michael Sherry, Overseer of the Poor, Peabody, Mass.

**1561—Le Mars, Iowa**—The Plymouth County Board of Supervisors received bids until 1:30 p.m., Oct. 12, for furnishing and delivering coal as may be required by the Court House, Jail and Poor, during the year beginning Oct. 15. Address County Audr. J. M. Hayes, Bd. of Supervisors, Le Mars, Iowa.

**1562—Lewistown, Penn.**—The Borough Council received bids until 7:30 p.m., Oct. 11, for furnishing and delivering anthracite coal as may be required at the various hose houses and town hall during the coming season. Address Secy. J. Harry Saxton, Lewistown, Penn.

**1563—Appleton City, Mo.**—The Board of Education at this place is negotiating for approximately 1,500 bu. of coal to be delivered in the bins at the school building. Address Secy., Bd. of Edu., Appleton City, Mo.

**1564—Cleveland, Ohio**—Bids will be received until noon, Oct. 20, for furnishing coal for the outdoor relief department as may be required during the ensuing year. Specifications may be obtained from W. H. Winans, Dept. of Charities and Correction, 209 City Hall. Address bids to Comr. A. R. Callow, Purchaser of Supplies, 511 City Hall, Cleveland, Ohio.

**1565—Adams, Mass.**—The Berkshire Cotton Mfg. Co. usually contracts during the current month for their annual requirements of coal involving approximately 25,000 tons of bituminous mine-run. The coal is delivered at the rate of one-third less in summer than in winter, and deliveries are made on Boston and Albany trestles. The company has a storage capacity of 10,000 tons. Address Pres. C. T. Plunkett, Berkshire Cotton Mfg. Co., Adams, Mass.

## Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

**No. 614—Titusville, Penn.**—This contract (Vol. 7, p. 795, Vol. 8, p. 616), which provides for furnishing the local Board of Education with approximately 2,000 tons of Greensburg stoker coal, has been awarded to **H. B. Edwards Co.**, at $2.65 per ton, delivered in bin at the high school building. Address Chn. F. C. Kirkpatrick, Supply Comr., Titusville, Penn.

**1032—Cleveland, Ohio**—This contract (pp. 115, 323, 410), which provides for furnishing the local Board of Education with its fuel requirements during the ensuing year, has been awarded as follows: **Cleveland, Pittsburgh Coal Co.**, bituminous lump, $8,370; **The Zettelmeyer Coal Co.**, semibituminous lump, $15,600; **Cuyahoga Coal Co.**, semibituminous mine-run, bituminous nut and slack, $72,370. Address Dir. of Schools T. C. Hogan, School Headquarters, Rockwell Ave. and East 6th St., Cleveland, Ohio.

**1107—Kansas City, Mo.**—This contract (pp. 157, 576), which provides for furnishing the Densmore Hotel with approximately 300 tons of slack coal, was awarded to the **Kansas City Coal Co.** Address Purchasing Agent, Densmore Hotel, 912 Locust St., Kansas City, Mo.

**1199—Chattanooga, Tenn.**—This contract (pp. 244, 491), which provides for furnishing the local city government with approximately 1,800 tons of coal, was erroneously noted as having been awarded to Church & Co. The award was made at $2.20 per ton, the successful bidders being as follows: **Hibler-Barnes Co.**, Brushy Mountain screened run-of-mine coal, 800 tons; **Enterprise Coal Co.**, Fentress coal, 600 tons; **Whiteside Coal Co.**, Wilder coal, 400 tons. Address Comr. E. D. Harris, Dept. of Pub. Utilities, Grounds and Bldgs., Chattanooga, Tenn.

**1257—Hay Springs, Neb.**—This contract (p. 324), which provides for furnishing the Board of Education School District No. 3 with coal as may be required during the coming school year, has been awarded to **Henry & Richmond,** at $4.75 per ton. Address Secy. N. L. Parsons, Bd. of Edu., Hastings, Neb.

**1321—Plymouth, Ind.**—This contract (pp. 367, 530), which provides for furnishing Marshall County with approximately 280 tons of Pocahontas coal has been awarded to the **West Virginia Pocahontas Coal Corporation** of Detroit, Mich., at $1.55 per ton, f.o.b. cars. Address County Audr. G. F. McCoy, Plymouth, Ind.

**1344—Irene, S. D.**—This contract (p. 411), which provides for furnishing the County Court House and jail with coal up to and including April of next year, has been awarded to **Fred Donaldson Co.**, of Yankton, S. D., at $6.60 per short ton. The Loonan Lumber Co. bid $6.60 and Fred Borge $6.80 per ton. Address County Audr. W. O. Nelson, Bd. of County Comrs., Irene, S. D.

**1345—Rich Hill, Mo.**—This contract (p. 411), which provides for furnishing the local Board of Education with approximately 4,000 bu. of coal to be delivered in the bins of the various school buildings, has been awarded to the **McComb Coal Co.**, at $2.35 per ton. Address Secy. L. C. Stonebreaker, Bd. of Edu., Rich Hill, Mo.

**✚1357—New Kensington, Penn.**—This contract (p. 411), which provides for furnishing and delivering 500 tons of bituminous coal to the local schools, has been awarded to **B. J. Moorhead** on Cornell bituminous at $1.63 per ton. Address Secy. B. F. Davis, School Bd., New Kensington, Penn.

**✚1393—Troy, Ohio**—This contract (p. 447), which provides for furnishing the Miami County Board of Commissioners with approximately 1,000 tons of coal for use at the County Infirmary, has been awarded to the **Fidelity Coal Co.**, at $2.75 per ton for 1½-in. screened lump, and $2.45 per ton for 1-in. screened lump, prices being f.o.b. sidetrack at the infirmary. There were three bidders on this business. Address County Audr. M. T. Staley, Miami County, Troy, Ohio.

**✚1394—New Castle, Penn.**—This contract (p. 447), which provides for furnishing Lawrence County Court House and jail with coal during the coming season, has been awarded to **S. G. Gano,** at $2.49 per ton for Pittsburgh 1¼-in. screened coal. C. J. Strieb bid $2.72; Ramsey Bros., $2.63; New Castle Transfer & Storage Co., $2.59; John V. Travers, $2.63; Woods-Golder Construction Co., $2.63. Address Clk. James R. Lamoree, Bd. of County Comrs., New Castle, Penn.

**✚1395—Pinckneyville, Ill.**—This contract (p. 447), which provides for furnishing Dist. No. 50 with coal during the school year ending June 30, 1916, has been awarded to the **Hale Coal Co.**, at $1.75 per ton for mine-run. Address Clk. C. H. Roe, Jr., Pickneyville, Ill.

**✚1397—Pomeroy, Ohio**—This contract (p. 447), which provides for furnishing the Salisbury Township Board of Education with coal, has been awarded as follows, rates being per bushel for clean lump coal: **T. C. Radford,** 11c.; **Walter White,** 11c.; **V. T. Lambert,** 12c.; **Homer Radford,** 8c.; **Will Hines,** 8c. Address Clk. Leo. J. Byrne, Salisbury Township Bd. of Edu., Pomeroy, Ohio.

**1398—Vandegrift, Penn.**—This contract (p. 447), which provides for furnishing the Vandergrift School District with Pittsburgh nut or No. 1 coal, has been awarded to **J. H. Claypool.** The contract involves eight carloads of coal. Address Secy. W. W. Wiggins, School Bd., Vandergrift, Penn.

**✚1402—New Lexington, Ohio**—This contract (p. 447), which provides for furnishing the local Board of Education with lump and mine-run coal, has been awarded to George C. Butt at $2.15 per ton delivered. Address Clk. J. H. Cookson, Bd. of Edu., New Lexington, Ohio.

**✚1403—Omaha, Neb.**—This contract (p. 448), which provides for furnishing the fuel requirements of the local Board of Education, has been awarded to the **C. W. Hull Co.** and **Sunderland Bros.** The contract provides for furnishing and delivering 8,500 tons of bituminous coal and 350 tons of

anthracite, the bids on the former ranging from $3.88 to $4.42, and the anthracite being $10.08 per ton. Address Secy. W. T. Bourke, fifth floor, City Hall, Omaha, Neb.

**+1411—Youngstown, Ohio**—This contract (p. 448), which provides for furnishing and delivering approximately 800 tons of coal for the Public Service, has been awarded to the **Youngstown Ice Co.** on the following basis: ¾-in., $2.45; 1¼-in., $2.55; 3-in. nut, $2.40. The Crystal Ice and Storage Co. bid as follows: ¾-in., $2.65; 1¼-in., $2.60; 3-in. nut, $2.65. Address Clk. H. C. Fox, Pub. Service, Youngstown, Ohio.

**+1412—Toulon, Ill.**—This contract (p. 448), which provides for furnishing the Stark County Poor House, Court House and Jail with coal during the ensuing year, has been awarded to **R. L. McClellan** on lump coal from a local mine at 11c. per bu. The Ballentine Coal Co. bid 11½c. per bu. for Springfield lump. Address County Clk. W. E. Nixon, Stark County, Toulon, Ill.

**+1413—Valentine, Neb.**—This contract (p. 448), which provides for furnishing three carloads of coal to be delivered in the basement of the Court House, has been awarded to **J. W. Yeast & Son,** who were the only bidders at $7 per ton for Trenton lump. Address Clk. A. B. Green, Court House, Valentine, Neb.

**1414—Granite City, Ill.**—This contract (p. 448), which provides for furnishing the Corn Products Refining Co. with their fuel requirements until Apr. 1 of next year, has been awarded to the **North Breeze Mining Co.,** of St. Louis. The contract involves about 35,000 tons of Illinois one inch, and two inch screenings. Address Pur. Agt. S. J. Petit, 213-217 Illinois St., Chicago, Ill.

**1415—New York, N. Y.**—This contract (p. 448), which provides for furnishing and delivering approximately 3,000 gross tons of No. 1 buckwheat to the Bellevue Hospital has been awarded to **Pattison & Bowns,** at $2.69. Other bids were: Meeker & Co., $3.08; Burns Bros., $2.92; Charles D. Norton & Co., $2.81. Address Central Purchasing Committee, Room 1226 Municipal Bldg., New York, N. Y.

**+1419—Bellaire, Ohio**—This contract (p. 489), which provides for furnishing the Mead Township Board of Education with approximately 2,000 bu. of three-quarter coal has been awarded as follows: **J. H. Neff,** 750 bu. at 14¼c.; **William Ramsey,** 150 bu. at 12c.; **W. H. McCabe,** 580 bu. at 11½c.; **H. Warren,** 325 bu. at 12½c.; **Carl Dumfel,** 300 bu. at 14½c. Address Clk. Thomas C. Kirkland, Mead Township, Bd. of Edu., Belmont County, Bellaire, Ohio.

**1423—Topeka, Kan.**—This contract (p. 489), which provides for furnishing the Municipal Electric Light Department with approximately 400 tons of coal, has been awarded to the **Southwestern Coal Co.** on the following basis: **Nut, $2.70;** mill, $2.50; slack, $2.24. Address Supt. E. G. Stahl, Municipal Electric Light Dept., Topeka, Kan.

**+1424—Warren, Ohio**—This contract (p. 489), which provides for furnishing the County Infirmary with approximately 500 tons of coal, has been awarded to the **Peoples' Ice and Cold Storage Co.,** at $1.95 per ton, f.o.b. switch at the Infirmary. Address Aud. W. B. Harrington, Trumbull County, Warren, Ohio.

**+1426—Rugby, N. D.**—This contract (p. 489), which provides for furnishing the Pierce County Commissioners with lignite coal, has been awarded to the **Bovey-Shute Lumber Co.,** at $2.97 per ton. Address Audr. A. O. Spillum, Pierce County, Rugby, N. D.

**+1429—Massillon, Ohio**—The contract (p. 490), which provides for furnishing the Board of Education with coal during the ensuing year, has been awarded to the **Artificial Ice and Coal Co.** on the following basis: Massillon lump, $3.04; mine-run, $2.89; slack, $1.69; Goshen lump, $2.29; mine-run, $1.99; slack, $1.65. Prices include delivery in bins as required. Address Clk. William Fielberth, Bd. of Edu., Massillon, Ohio.

**+1433—Peoria, Ill.**—This contract (p. 490), which provides for furnishing the City Government with coal during the year beginning Oct. 1, has been awarded to **Dooley Bros.,** at $2 per ton for 1¼-in. lump coal The Thompson Coal Co. bid $2.05 for the same grade. Address Clk. Wm. E. Moran, Peoria, Ill.

**1434—Poplar, Mont.**—This contract (p. 490), which provides for furnishing Public School No. 9 with coal has been awarded to the **Poplar Lumber Improvement Co.** on Bear Creek lump at $7.50 a ton. Three other bids were received on this contract but they were too late to qualify. Address Clk. H. C. Walker, School Dist. No. 9, Poplar, Mont.

**1458—Davenport, Wash.**—This contract (p. 530), which provides for furnishing the Lincoln County Board of Commissioners with coal, has been awarded to **J. W. Sawyer** at $6.95 per ton for a Cascade Roslyn mine-run coal. Address J. E. Howard Bd. of County Comrs., Davenport, Wash.

## Contract Notes

**Fairbury, Neb.**—The contract for furnishing the city government with its coal supply during the ensuing year has been awarded to **Venners & Green** at $1.72½c. per ton for Weir nut at the mine.

**General**—A commercial representative of a foreign government in Washington, D. C., reports that he is in receipt of requests for the name and addresses of American exporters of coke. Large quantities are desired.

**Lewes, Del.**—The Municipal Light Department at this place consumes about 1,000 tons of semi-bituminous coal per annum for which they pay about $1.55 per ton. It is understood that they do not contract. Address Supt. Charles Lynch, Lewes, Del.

**Switzerland**—An American consular officer in Switzerland reports that an association in his district desires to communicate with American producers and exporters of coal. Specifications, etc., may be had on application to the bureau of foreign and domestic commerce or its branch offices.

**Boston, Mass.**—The Gonic Manufacturing Co. consumes approximately 1,500 tons of bituminous coal. Deliveries are made by water and railroad at the rate of 30 tons per week, and they have a storage capacity of 1,000 tons. Address Pur. Agt. Samuel Rindge, Gonic Manufacturing Co., 4 Winthrop Square, Boston, Mass.

**Cannel City, Ky.**—Contracts calling for 500 tons daily of cannel coal are reported to have been made by the Pearsite Co., with the Kentucky Block Cannel Coal Co. here, the deliveries in the maximum to be reached by about the first of November when the dye extracting plant under construction here is due to be finished.

**Chile, S. A.**—The chief engineer of a gas company in Chile has informed a commercial attache of the Department of Commerce that he desires to obtain samples of the best American coking coal. The commercial attache has transmitted a report on this opportunity, which may be had on application at the bureau or its branch offices.

**South Norwalk, Conn.**—The South Norwalk Electric Works consumes about 1,500 to 2,000 tons of bituminous coal per annum, which is bought from local dealers at from $3.38 to $3.50 per ton. The company is using fuel oil mostly. Contracts are made at indeterminate periods. Address, Chf. Engr., W. H. Mosher, The South Norwalk Electric Works, South Norwalk, Conn.

**Egypt**—The steamer "Franklin" sailed from Baltimore Sept. 30 with 7,000 tons of Fairmont in the hold and 1,600 tons in the bunkers on her first trip, bound to Alexandria, Egypt. This inaugurates the regular Mediterranean service arranged by the Consolidation Coal Co. A sister ship, the "Plymouth," will be in commission in the course of a month. These ships are owned by the Coastwise Transportation Co. of Boston and are named for counties in Massachusetts.

**East St. Louis**—The City Council of East St. Louis, Ill., has awarded to the **William Helfrish Coal Co.,** East St. Louis, the contract for furnishing about 1,000 tons of 2-in. shaker screened coal to the City Hall, fire department and pumping stations for the period beginning Sept. 1 and ending May 1. The price is $1.60 delivered. There were eight bidders in all. The contract last year was held by the Huschle Coal Co., East St. Louis. Address Clk. David M. Walsh, East St. Louis, Ill.

**Boston, Mass.**—In the face of the uncertainty over conditions next season, there was a mild flurry in the market here a week ago over the rumor that one of the large distributors of Hampton Roads coals had named a low delivered price for the year beginning Apr. 1, 1916. It turned out, however, that what was named was simply a low charge for handling: that is, 75c. was quoted to include transportation from the Virginia terminals to Boston, insurance, discharging, and weighing. The proposal contemplates the use of two steamers, one of 12,600 and the other of 9,000 tons, and of a modern handling plant near Mystic Wharf, Boston. The price named is $3.60 per gross ton f.o.b. cars but it is expressly conditioned on the present circular price of $2.85 f.o.b. Hampton Roads. In other words, if the circular price of Pocahontas and New River coals for next year is higher or lower than $2.85, the distributors' contract price would be correspondingly raised or lowered, the intention being to add 75c. to the circular price in order to cover freight and handling at this end. The present railroad charge for discharging at Boston is 18c. with 3c. added for weighing when required. Subtracting 21c. from 75c. would leave but 54c. to cover water freight and insurance. This circular has been followed by others from competing distributors and it is likely that consumers inland will profit next year from this anxiety to book contracts.